Hepatobiliary System

The structure

liver

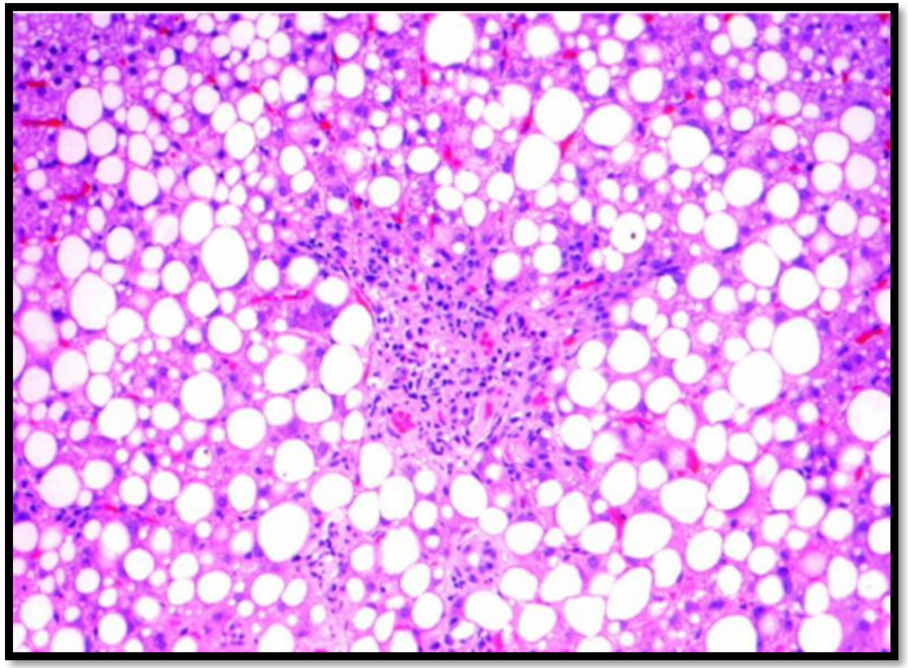
The characteristic features

appearance of a signet ring

The diagnosis : Macrovesicular steatosis

Causes:

Alcoholic or nonalcoholic liver disease and steatohepatitis, obesity, diabetes, chronic hepatitis C, protein calorie malnutrition, total parenteral nutrition, drugs effect (methotrexate or corticosteroids), Wilson disease.

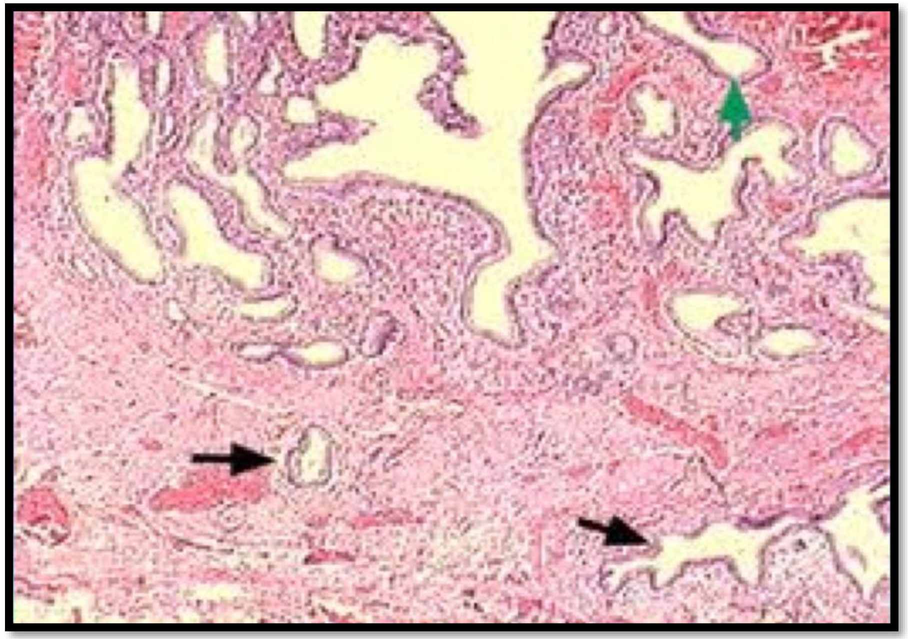


Hepatobiliary System

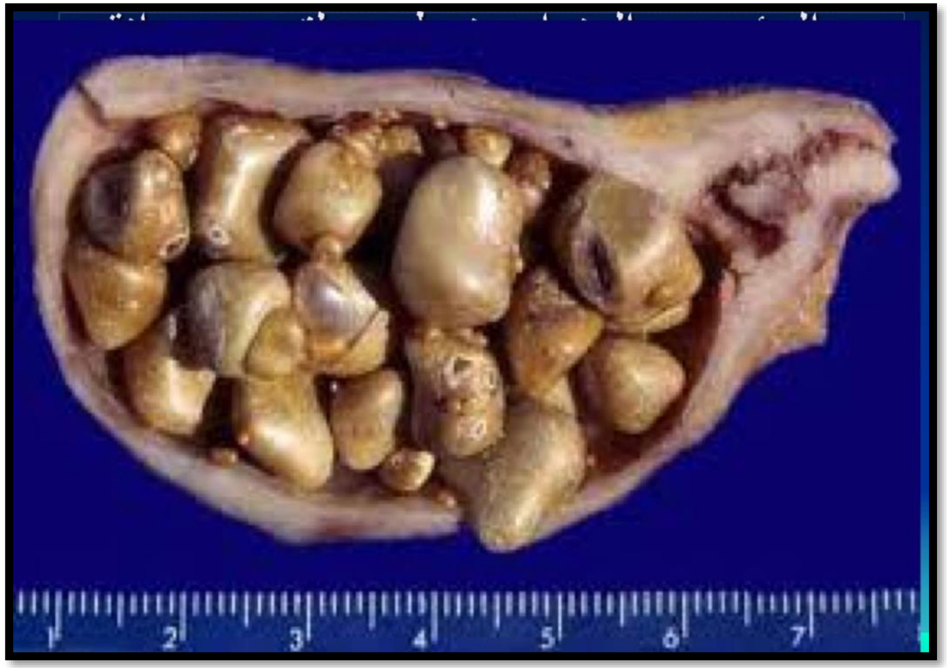
The structure
Gallbladder

The characteristic features
Rokitansky-Aschoff sinuses occasional mucosal outpouchings

The diagnosis : Chronic cholecystitis



Hepatobiliary System



The structure
Gallbladder

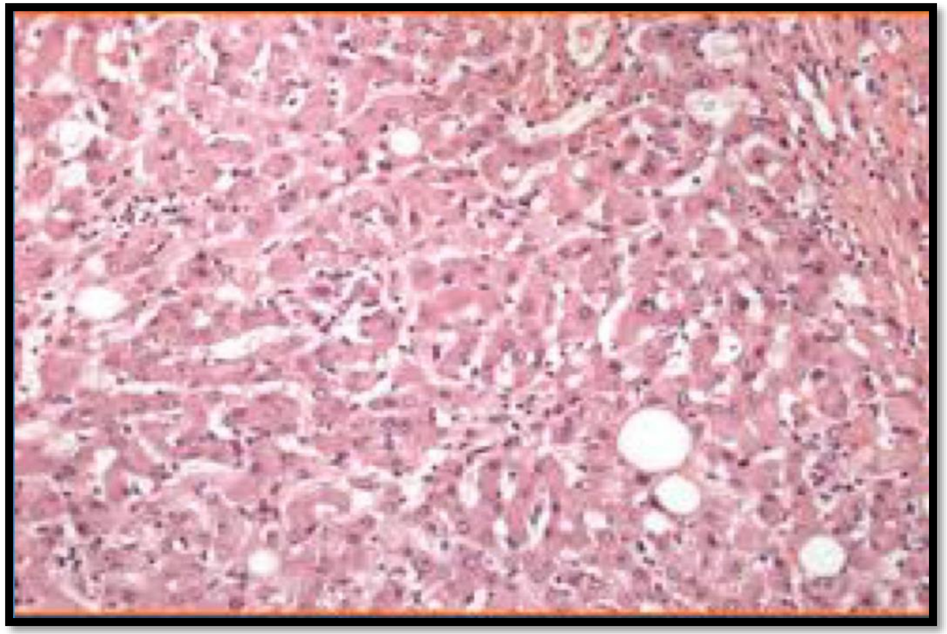
The diagnosis : gallstone

Causes:
1-Geography: more in the western world.
2-Age: increase incidence with advancing age
3-Genetic factors: first degree relatives of patient with cholelothiasis
4-the gender :twice more frequent in women
5-Drugs: estrogen therapy or birth control pills increase the incidence of gall stones.
6-Obesity: associated with increased cholesterol synthesis and excretion.
7-Diet :deficiency of dietary fiber content .
8-GIT diseases: for example: Crohns disease,ileal resection,ileal bypass surgery associated with interruption of enterohepatic circulation followed by gall stone formation

Hepatobiliary System

The structure
Liver

Composed of sheets and cords of cells that may resemble normal hepatocytes ,Abundant glycogen may generate a clear cytoplasm.
Portal tracts are absent; prominent arterial vessels and draining veins are distributed through the substance of the tumor.



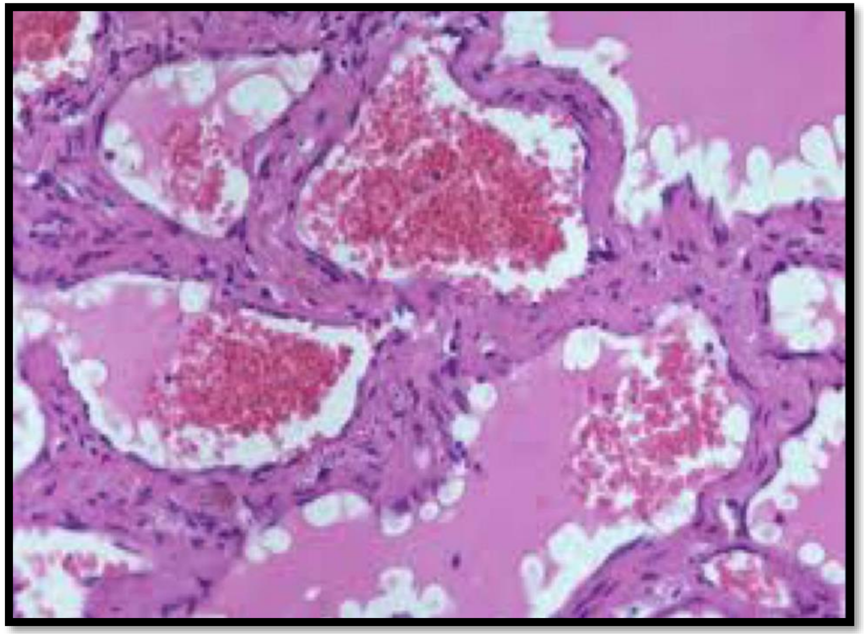
The diagnosis: Adenoma of liver

Hepatobiliary System

The structure
Liver

Endothelial cell-lined vascular channels and
Intervening stroma.

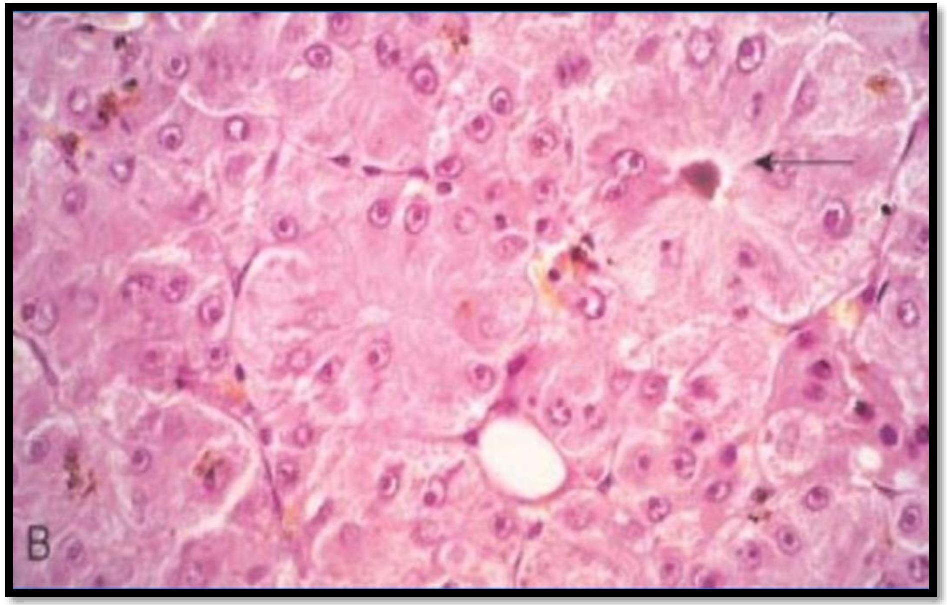
The diagnosis: Hemangioma of liver



Hepatobiliary System

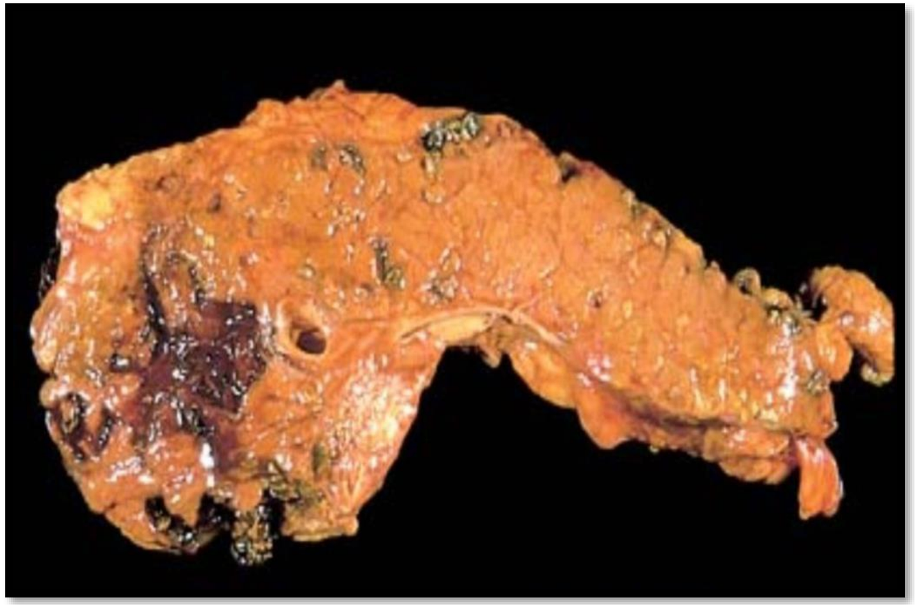
The structure
Liver

Hepatocellular carcinomas range from well-differentiated to highly anaplastic undifferentiated lesions.



The diagnosis: Hepatocellular Carcinoma

Pancreas



The structure
Pancreas

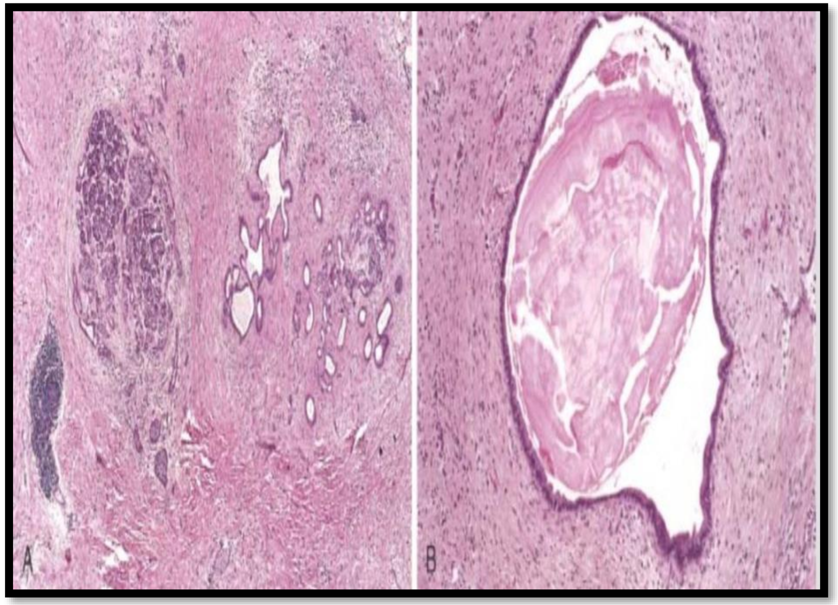
the pancreatic substance exhibits areas of red-black hemorrhage interspersed with foci of yellow-white, chalky fat necrosis .

The diagnosis: Acute Pancreatitis

Pancreas

The structure
pancreas

Parenchymal fibrosis.
Reduced number and size of acini with relative sparing of the islets of Langerhans.
Acinar loss
Variable dilation of the pancreatic ducts .
Chronic inflammatory infiltrate around lobules and ducts.
The interlobular and intralobular ducts are frequently dilated and contain protein plugs in their lumens.



The diagnosis: Chronic pancreatitis

Lymph node

The structure
Lymph node

The pathognomonic feature
Reed-Sternberg (RS) cells, Classic type

The diagnosis : Hodgkin Lymphoma

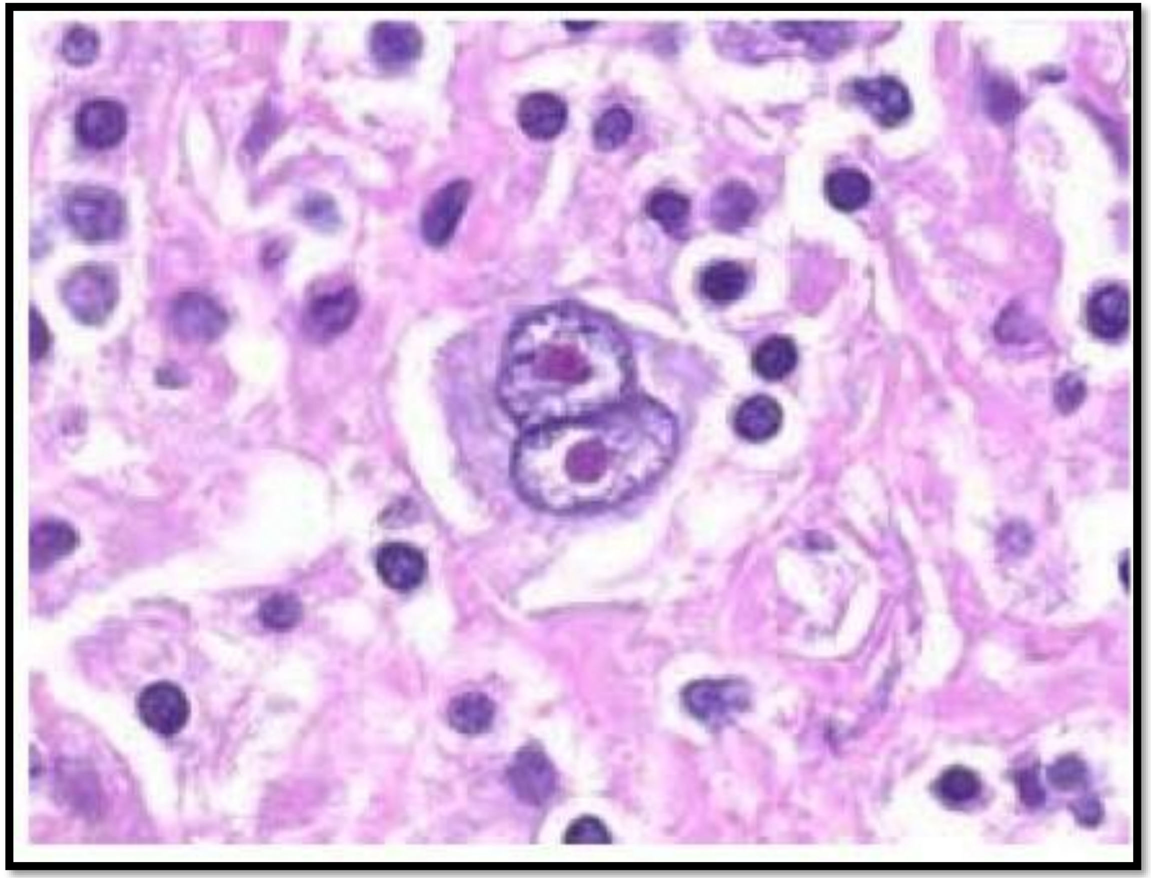


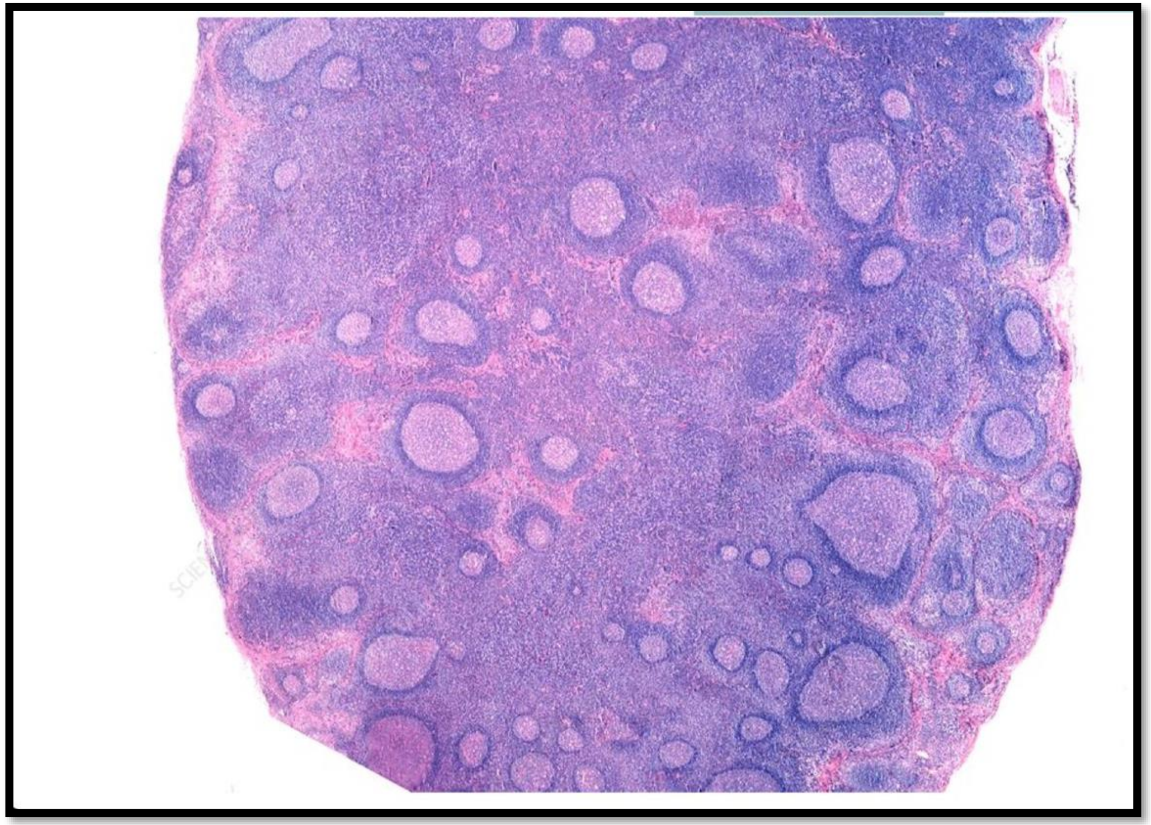
Table 11–9 Clinical Differences Between Hodgkin and Non-Hodgkin Lymphomas

Hodgkin Lymphoma	Non-Hodgkin Lymphoma
More often localized to a single axial group of nodes (cervical, mediastinal, para-aortic)	More frequent involvement of multiple peripheral nodes
Orderly spread by contiguity	Noncontiguous spread
Mesenteric nodes and Waldeyer ring rarely involved	Mesenteric nodes and Waldeyer ring commonly involved
Extranodal involvement uncommon	Extranodal involvement common

Lymph node

The structure
Lymph node

The diagnosis : Follicular hyperplasia

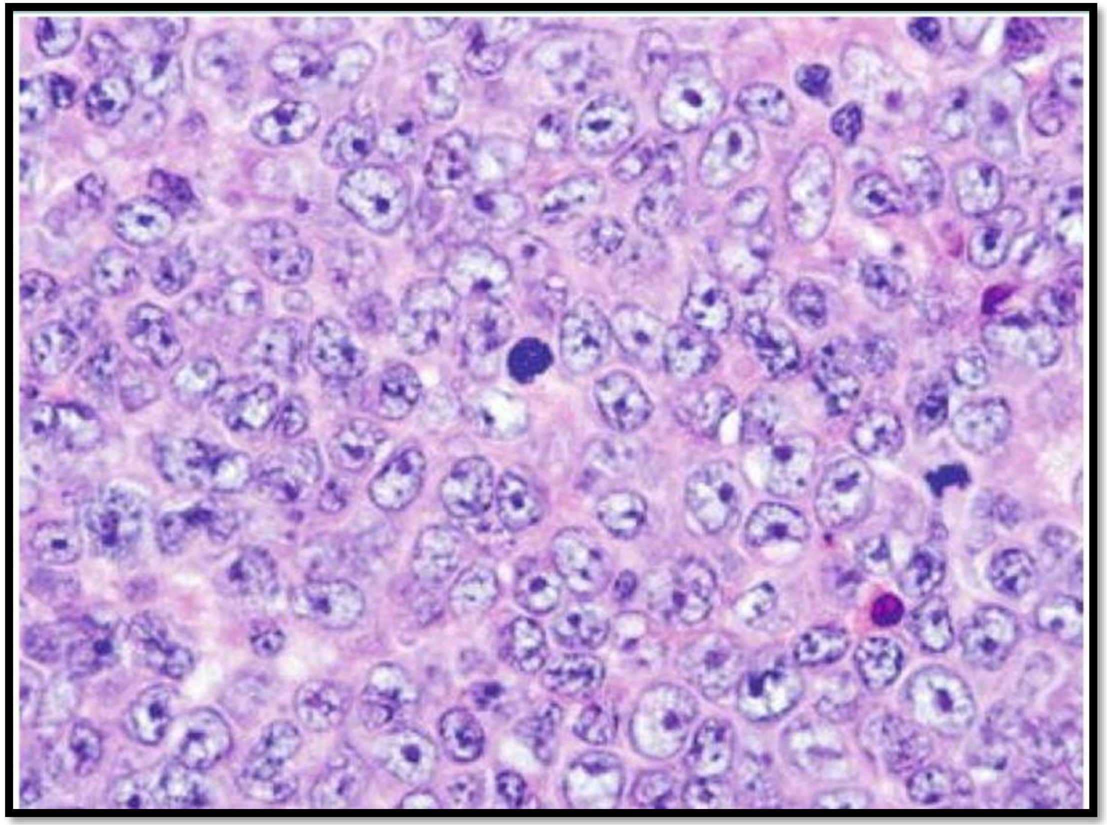


Lymph node

The structure
Lymph node

The pathognomonic features
Large cell size and a diffuse growth pattern obliterating the underlying architecture.
The nuclear shape is variable and vesicular in appearance, with 2 to 3 nucleoli; the cytoplasm is moderately abundant and can be pale or basophilic

The diagnosis : Diffuse Large B-cell Lymphoma

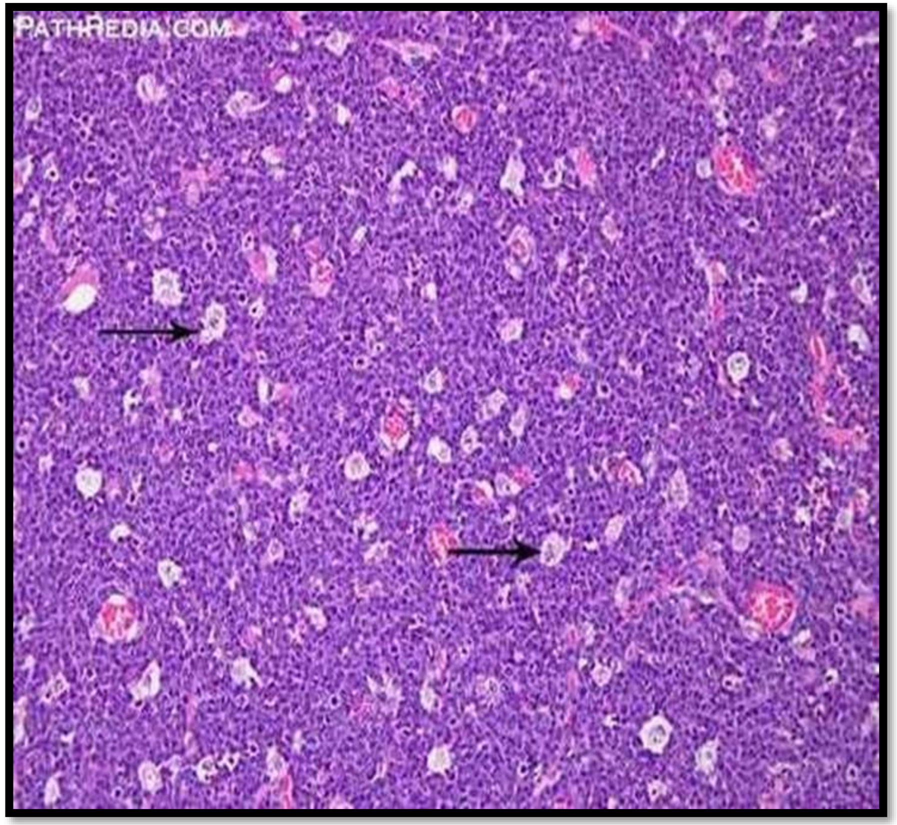


Lymph node

The structure
Lymph node

The characteristic features
apoptotic cells ingested by scattered macrophages with abundant clear cytoplasm produce a characteristic “starry sky” appearance.

The diagnosis : Burkitt Lymphoma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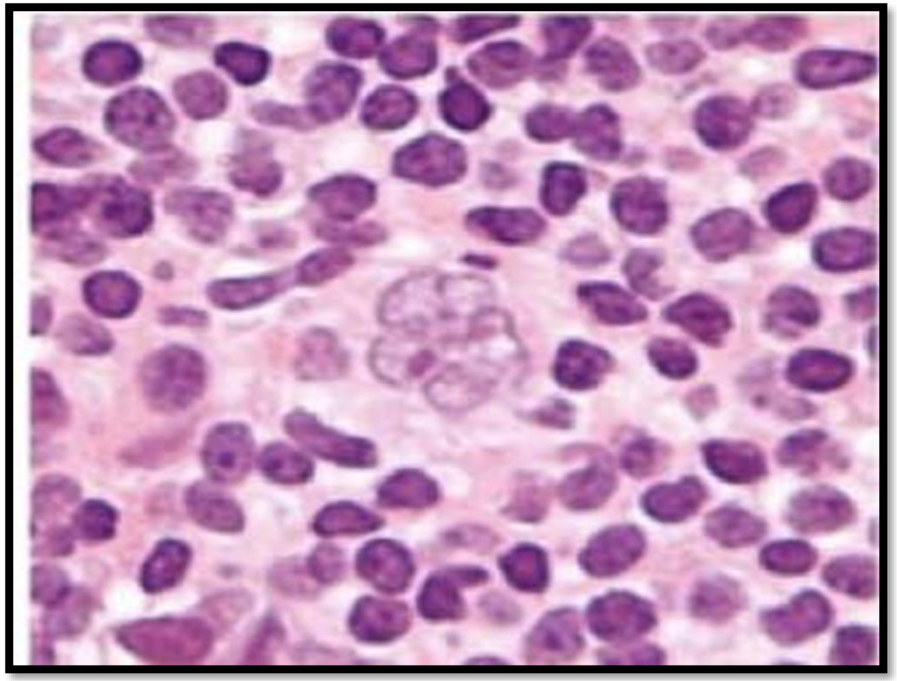
Lymph node

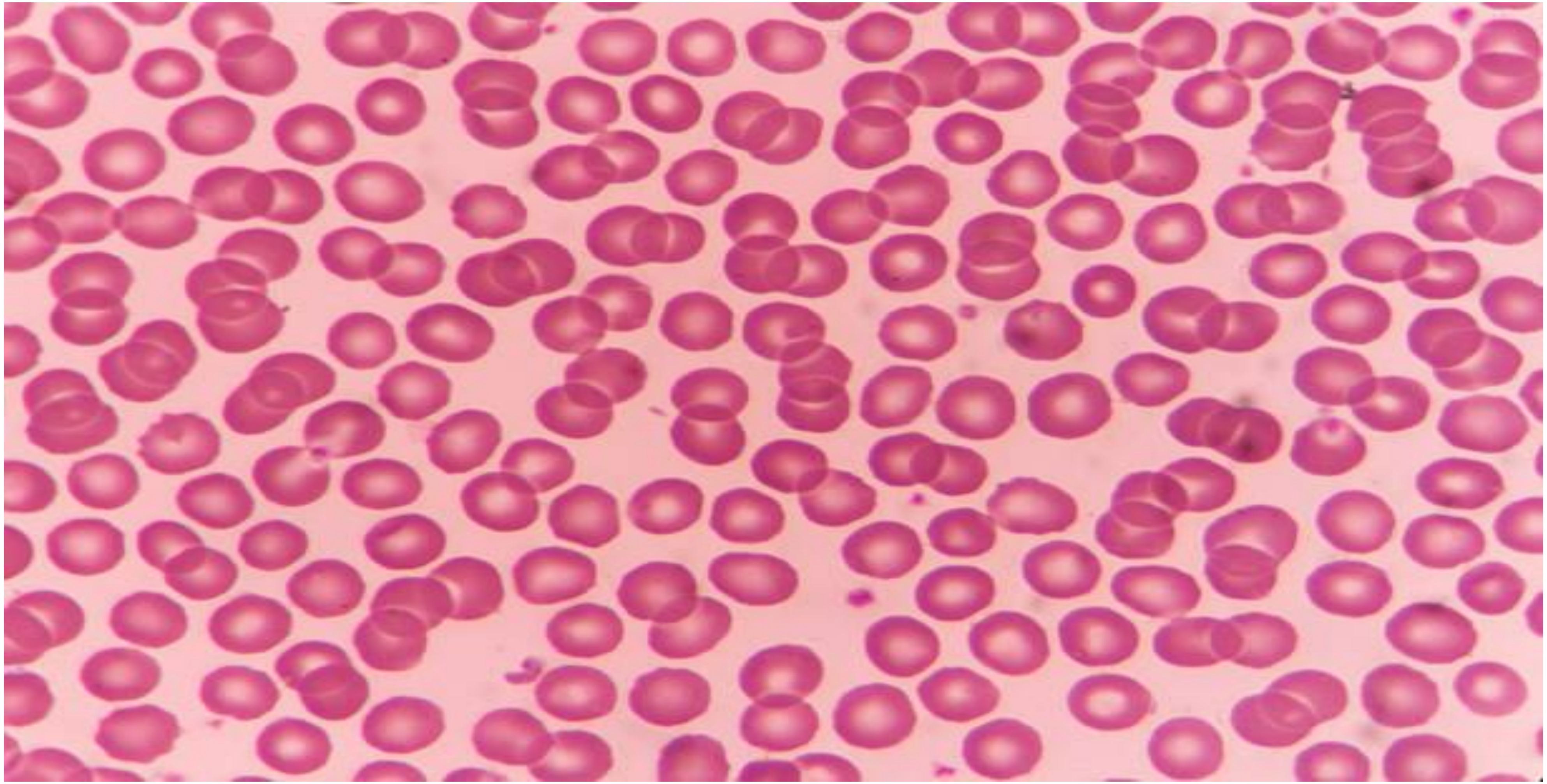
The structure
Lymph node

The pathognomonic features
RS Lymph histiocytic variants (pop corn cells)
polypoid nuclei resembling popcorn kernels

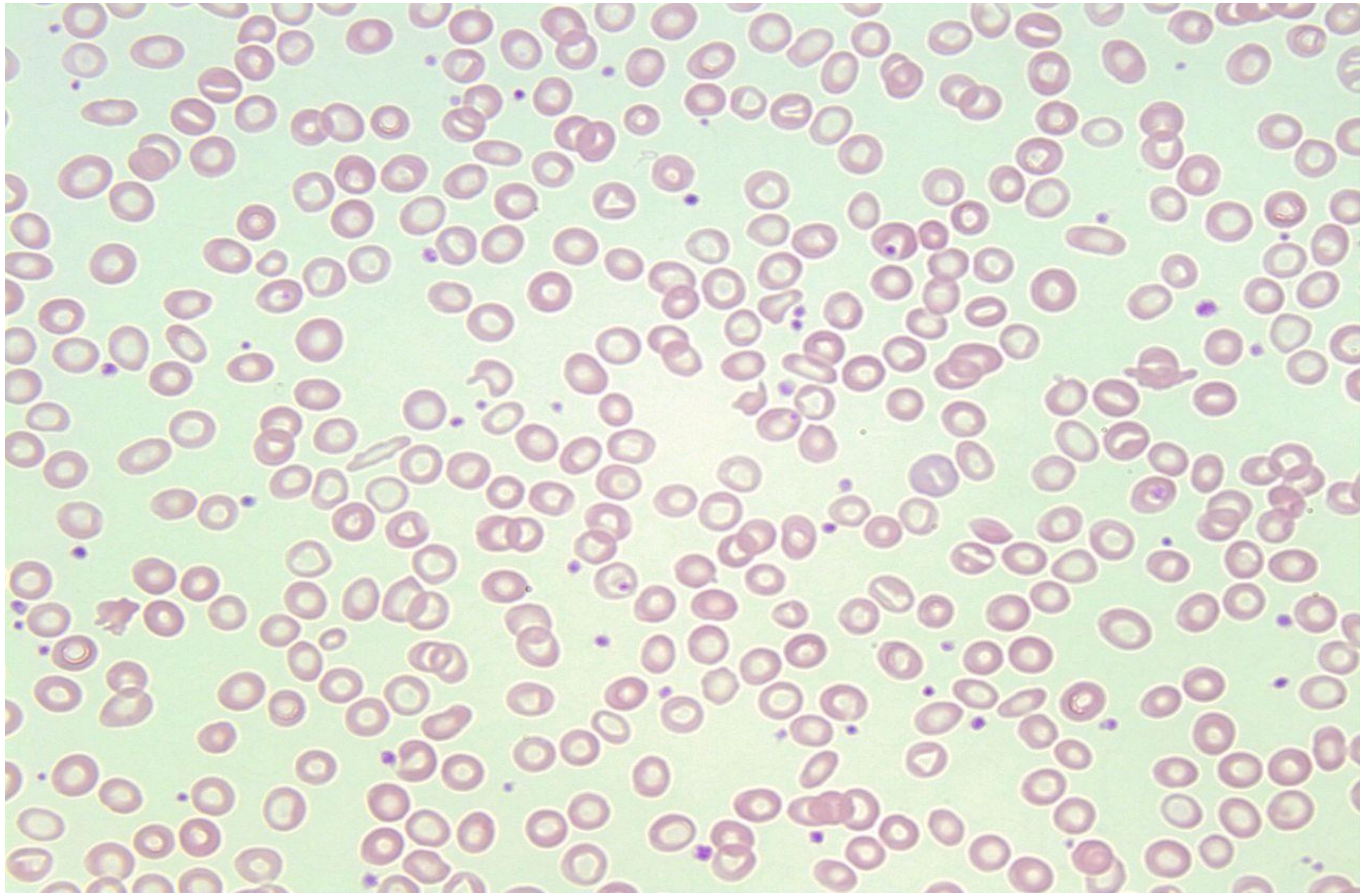
The diagnosis : Hodgkin Lymphoma



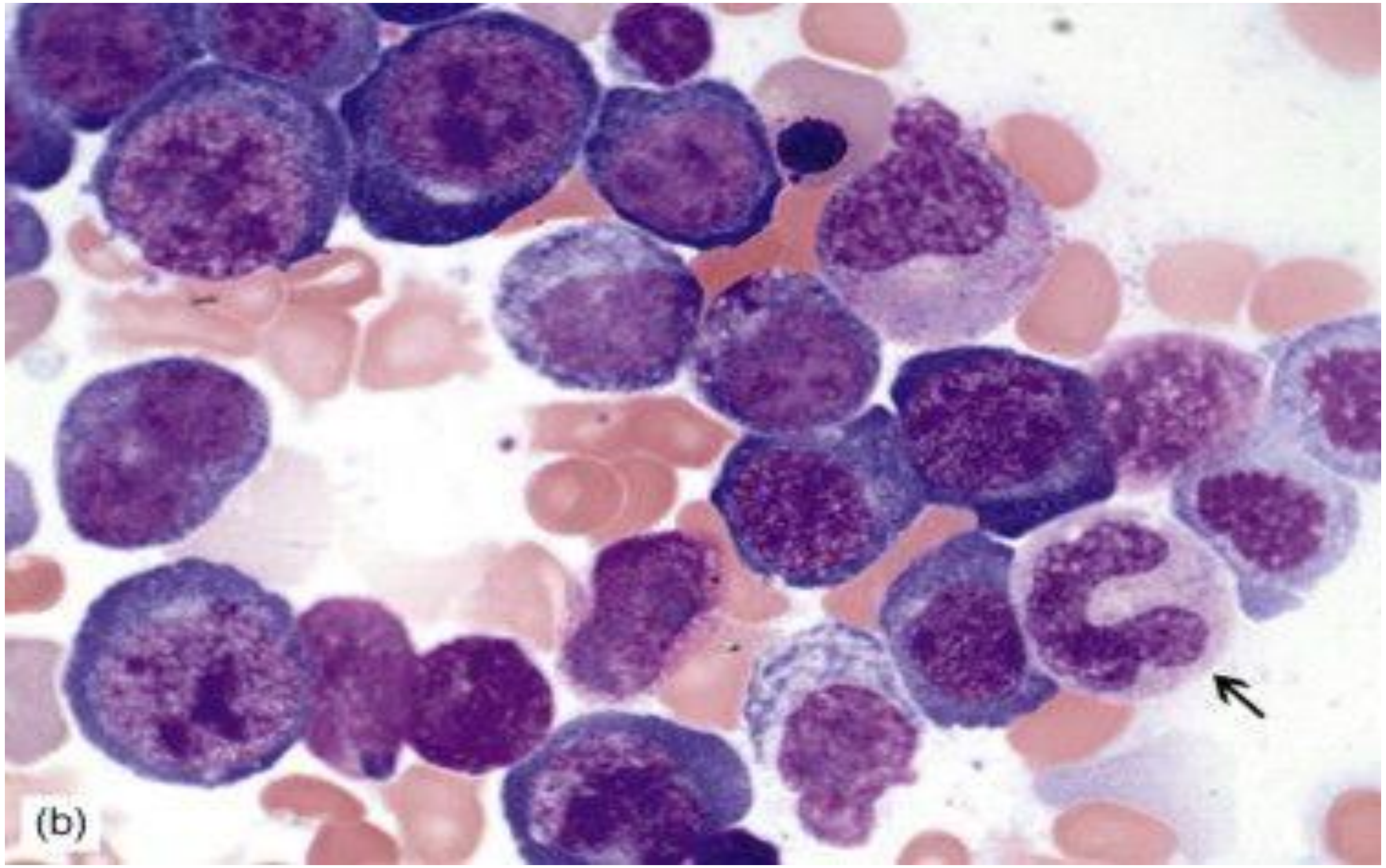
Normal RBCs



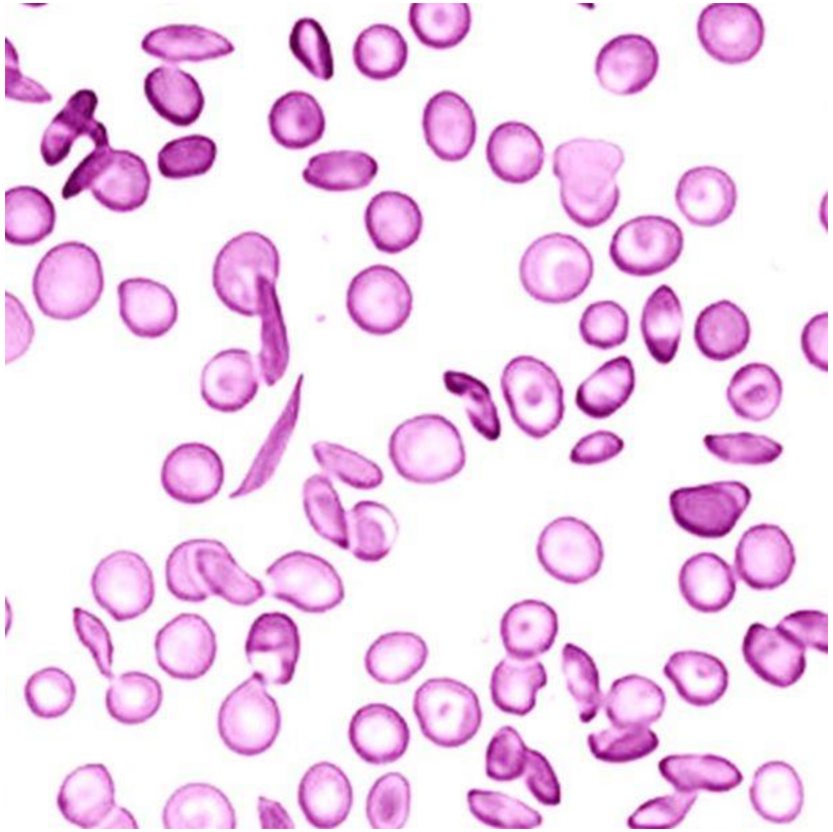
IDA



Megaloblastic anemia



Sickle cell anemia



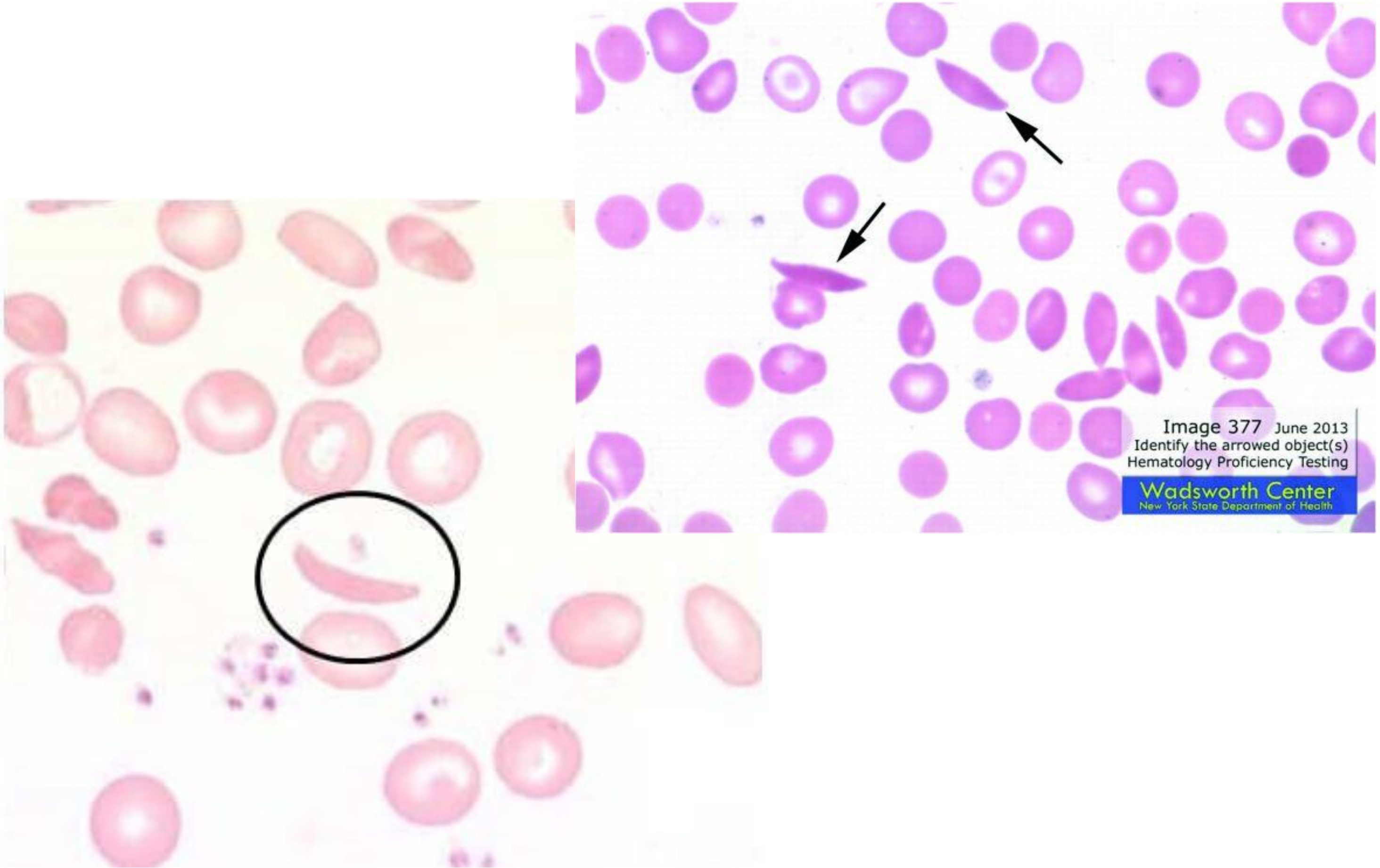
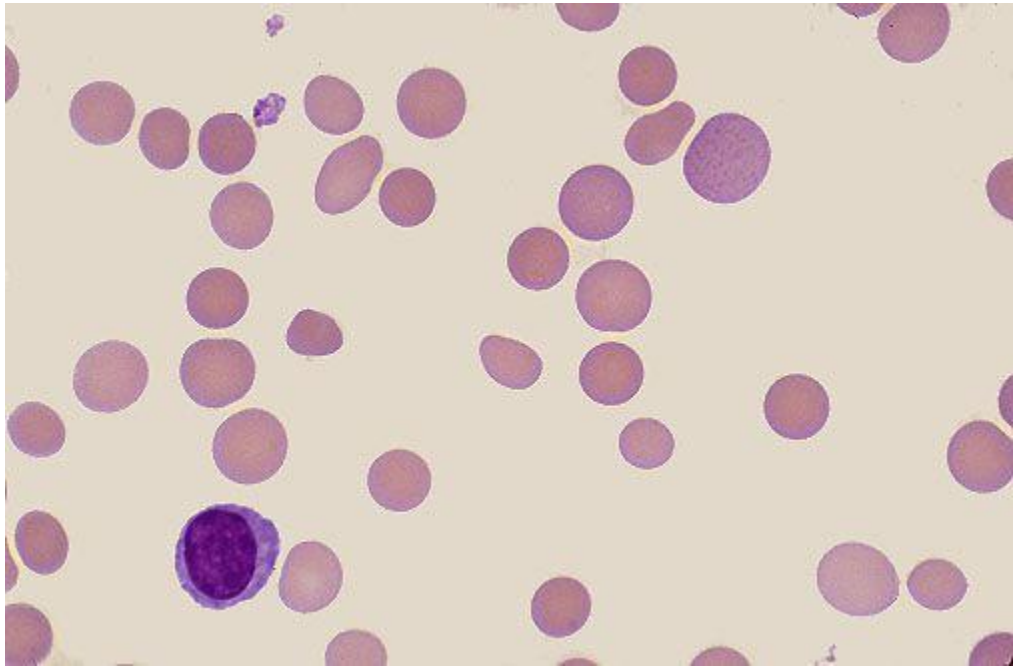
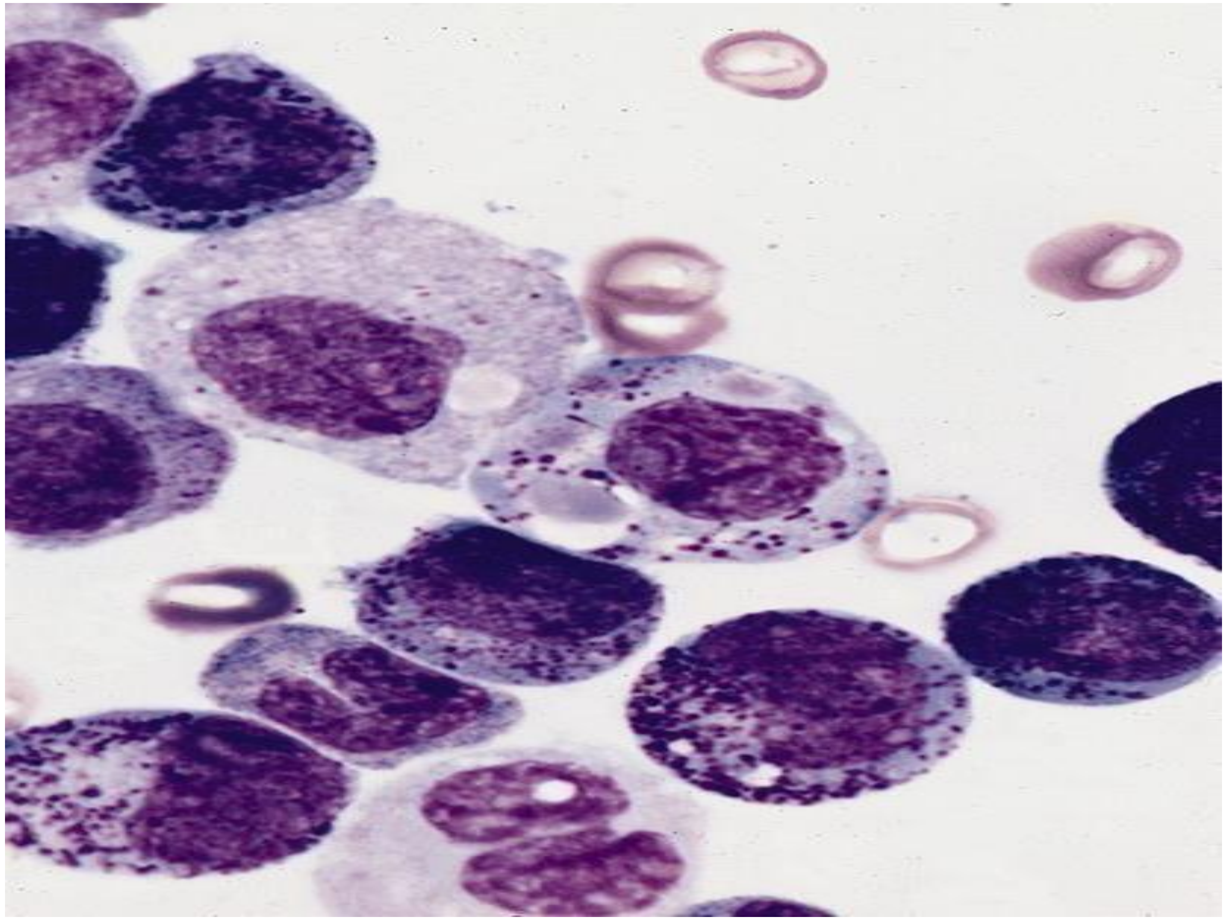


Image 377 June 2013
Identify the arrowed object(s)
Hematology Proficiency Testing
Wadsworth Center
New York State Department of Health

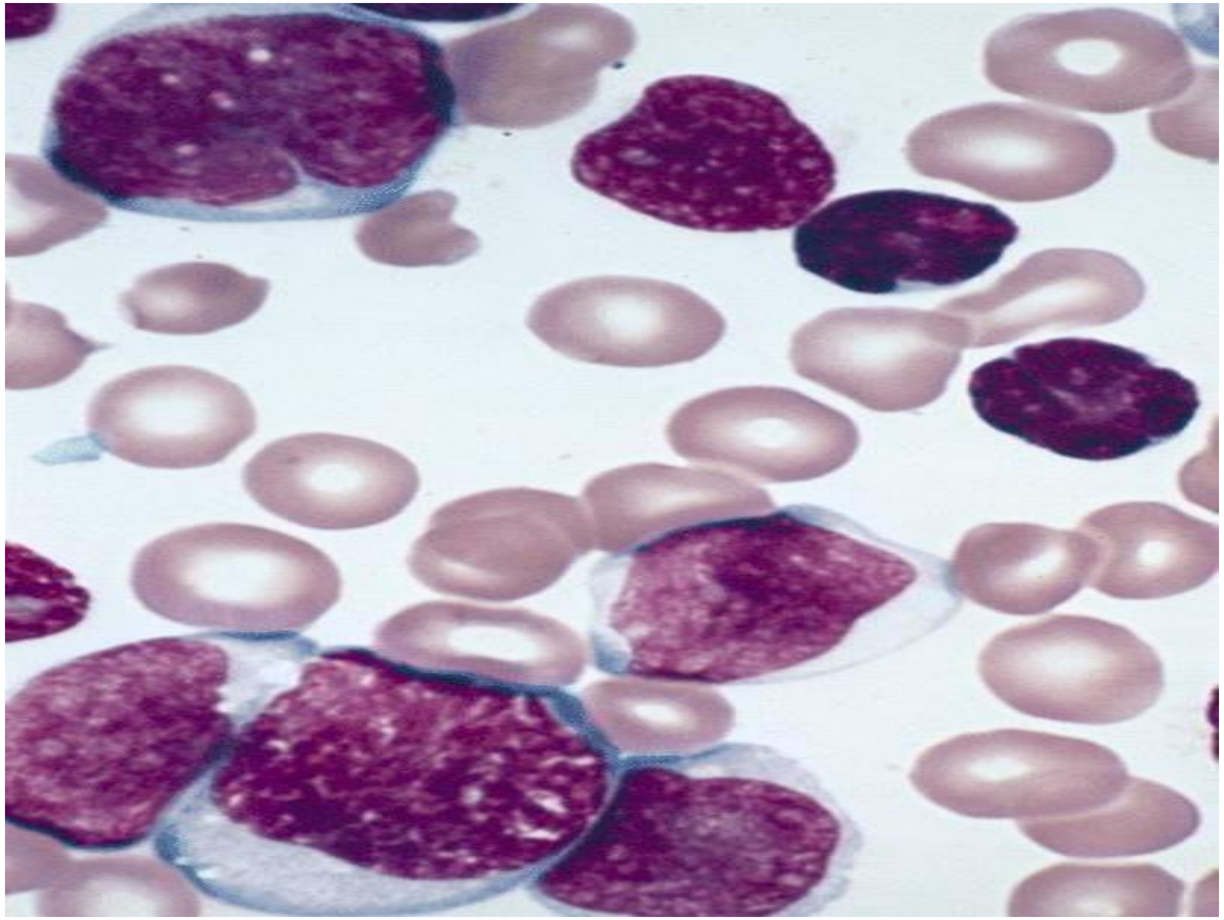
Spherocytosis



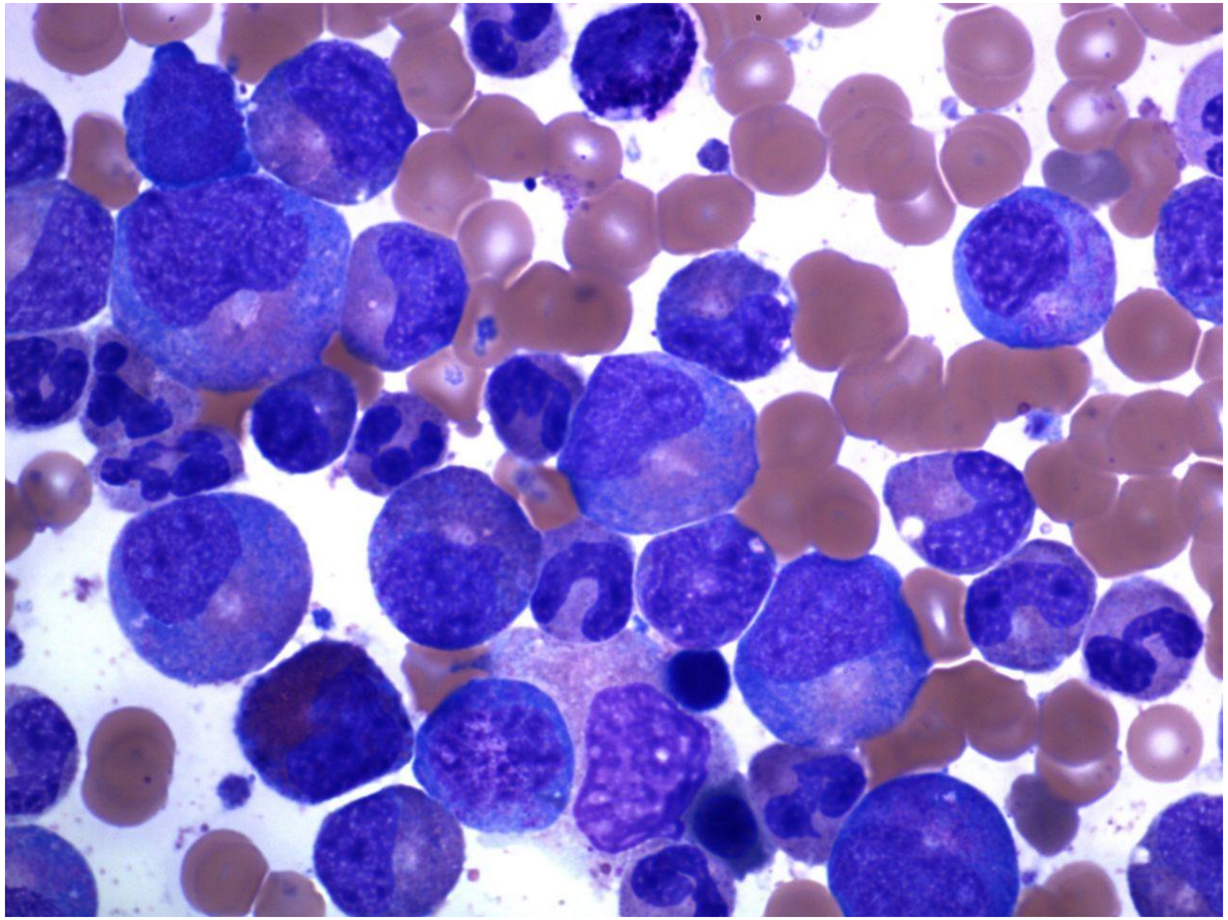
AML



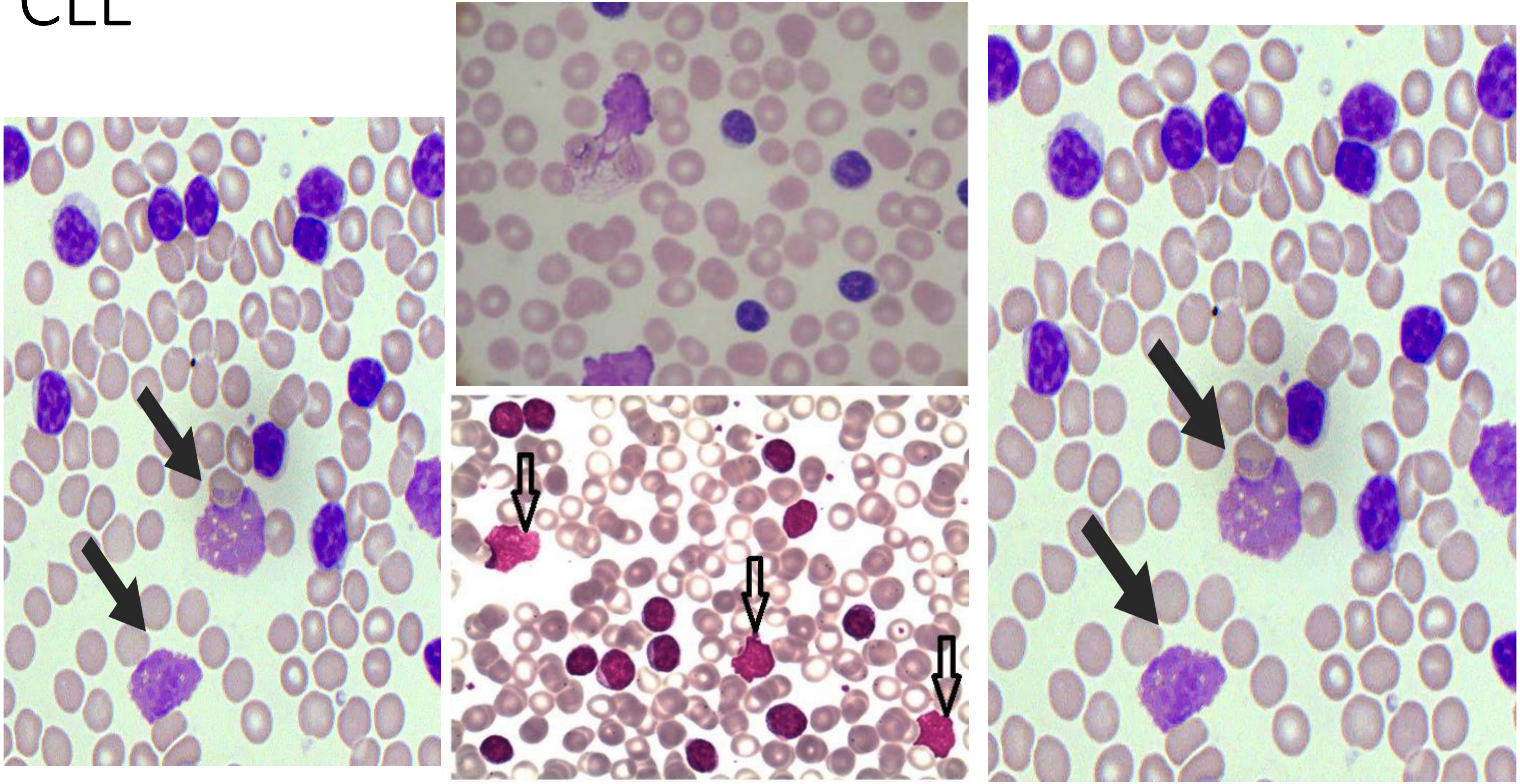
ALL



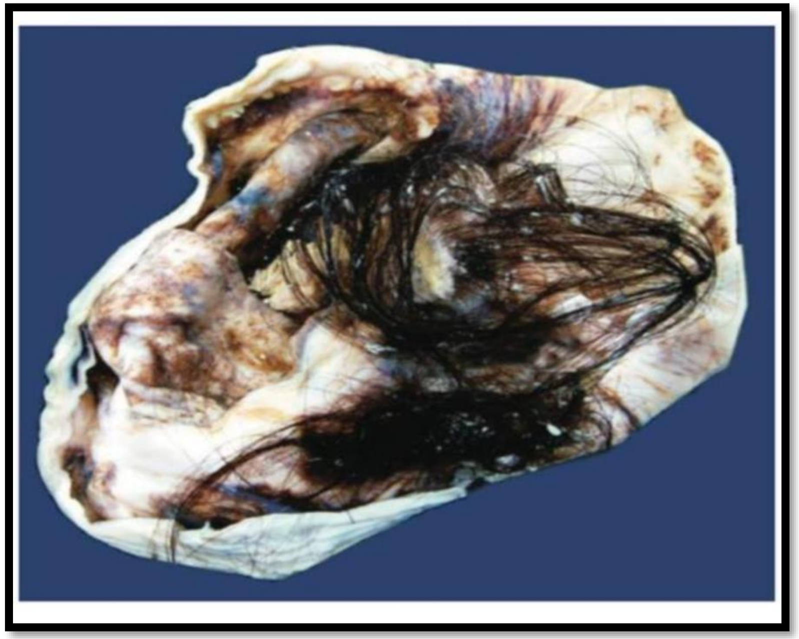
CML



CLL



Q\ Describe this picture, what’s the diagnosis and numerate it's types?



- Cut surface SHOW large unilocular cyst containing hair, pultaceous material and bony tissue

- Benign cystic teratoma (dermoid cyst)

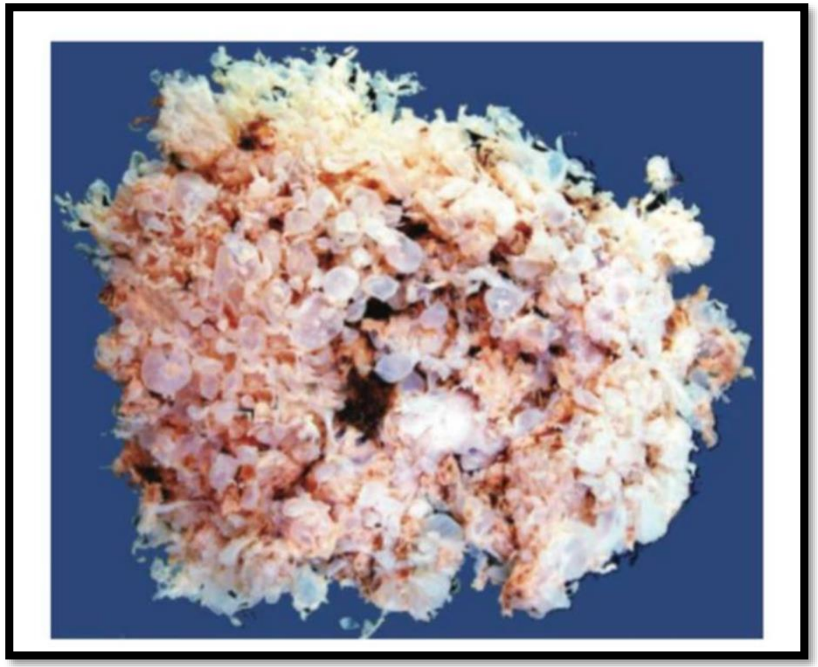
Types

Mature & immature

Q\ Describe this picture and give the diagnosis?

- The spacemen show numerous, variable size grape like translucent vesicles containing clear fluid, tan area of hemorrhage also seen

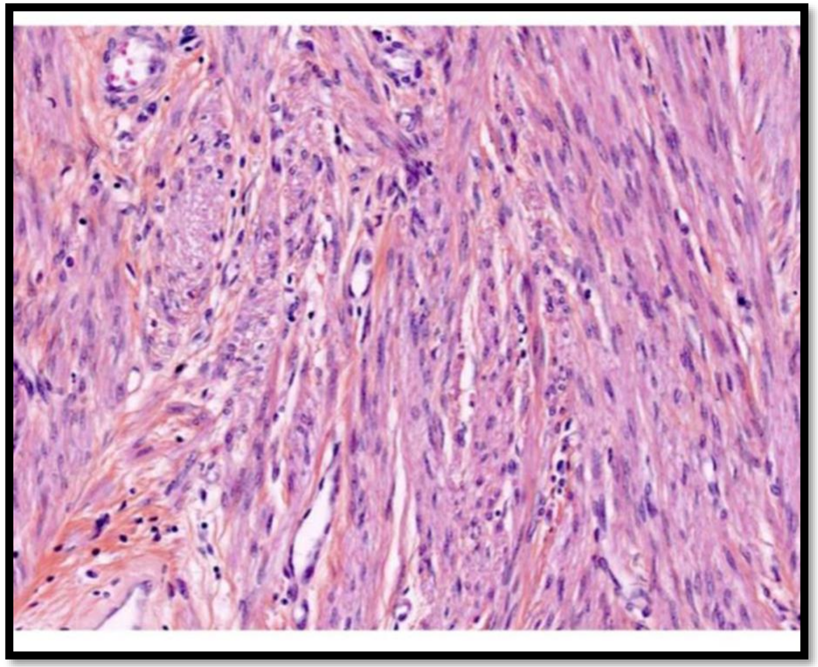
- Hydatiform mole



Q\ Describe this picture and give the diagnosis?

- Intersecting fascicles of monotonous spindle cells with indistinct borders, eosinophilic cytoplasm, cigar shape nuclei (with tapered ends) and small nucleoli.

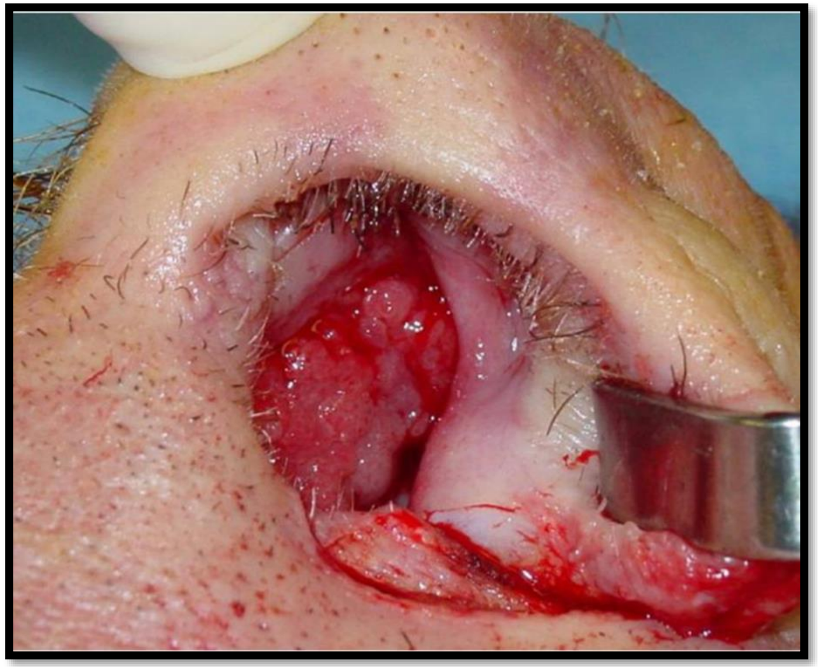
- Leiomyoma

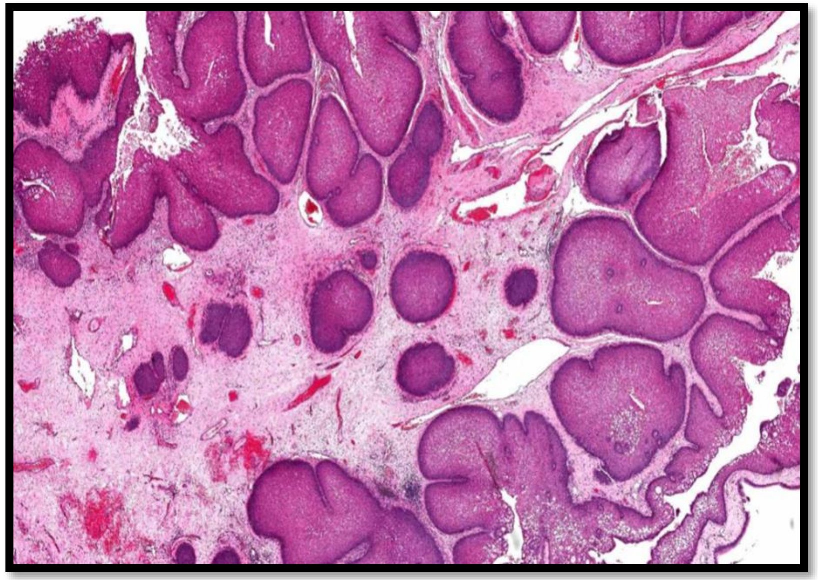


Q\ Describe this picture and give the diagnosis?

- Inverted papilloma is characterized by endophytic growth of epithelial nests with smooth outer contour..

- Sinonasal Papilloma

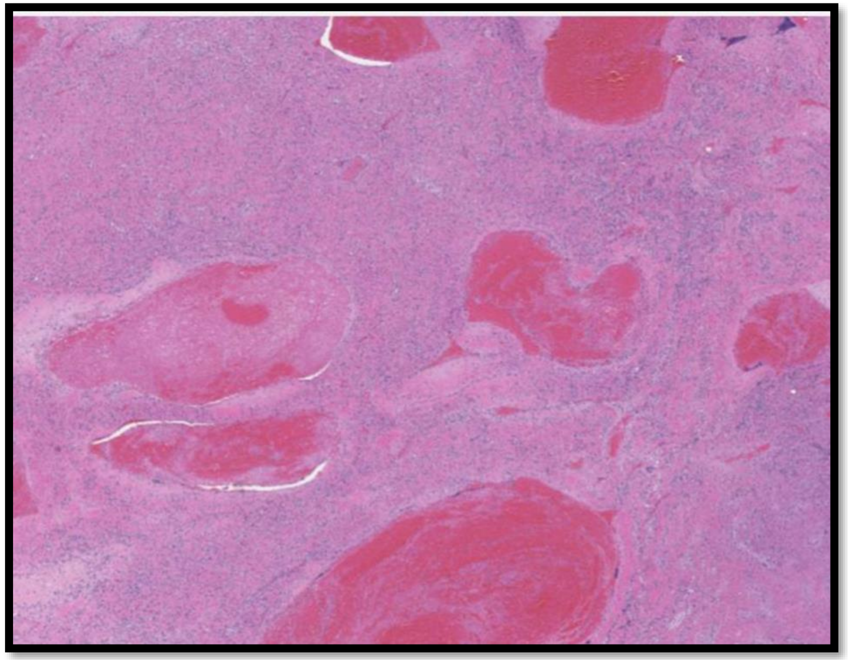




Q\ Describe this picture and give the diagnosis?

- Polypoid mass with numerous central dilated large vessels and peripheral fibrotic area.

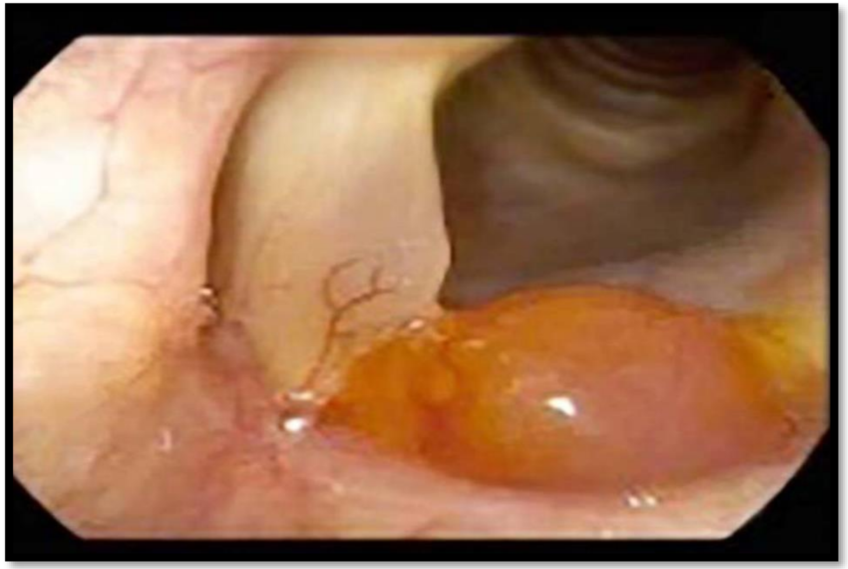
- Nasopharyngeal Angiofibroma



Q\ Describe this picture and give the diagnosis?

- Laryngoscopic appearance of vocal cord nodule, Smooth, round, 1 - 3 mm growths on true vocal cords, often on anterior third.

- Reactive nodules (vocal cord nodules and polyps)

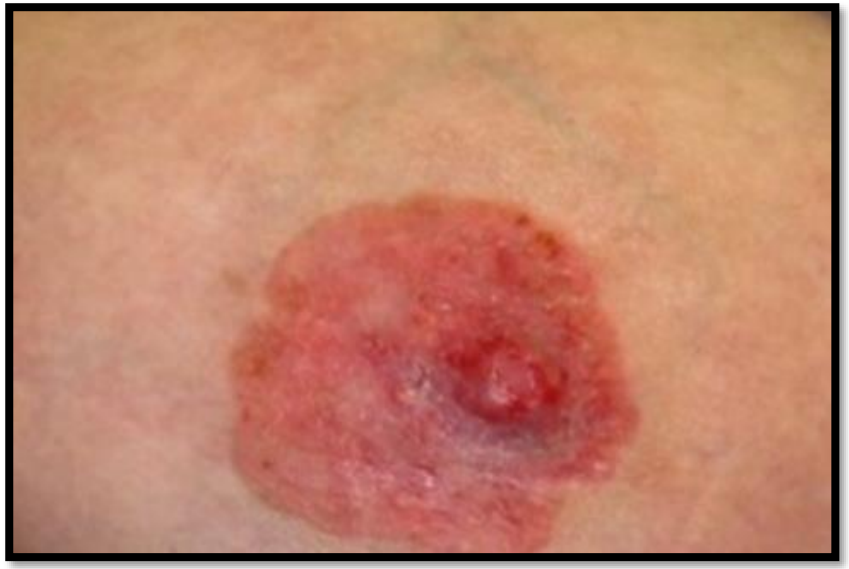


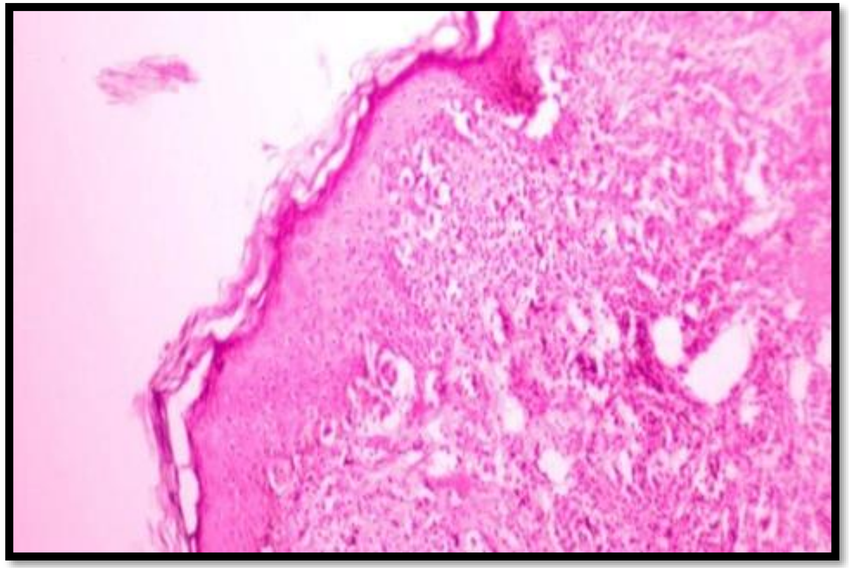
Types:
- Hyperplastic squamous mucosa in polyps
- Fibroblastic myxoid stroma in polyps
- Stromal hyalinization and fibrin deposition in polyps

Q\ Describe this picture and give the diagnosis?

- Nipple erosion and erythema
- Microscopic Single cells or clusters of cells spread throughout the epidermis
- Cells have abundant pale cytoplasm, large irregular nuclei with prominent nucleoli.

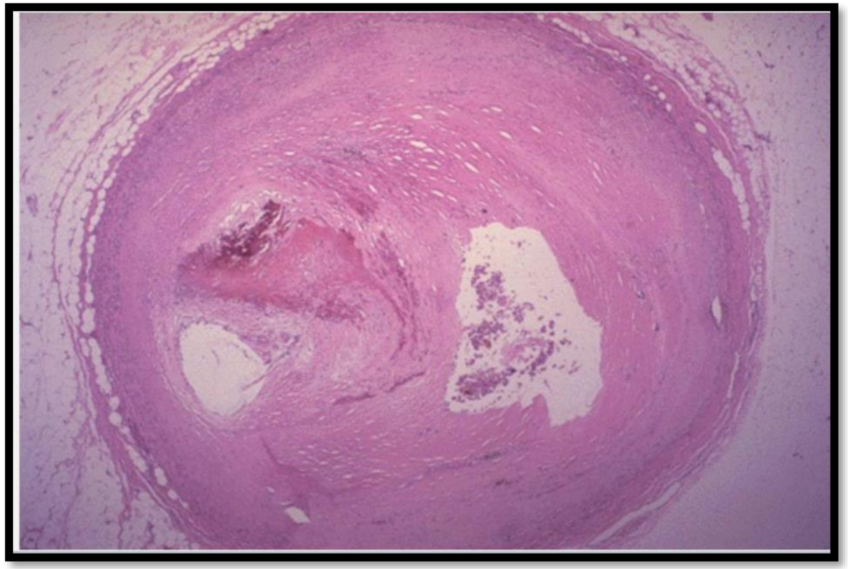
- Paget’s disease of breast





Q\ what is the Diagnosis, fate in general (numerate) and what is the specific fate appears in this slide

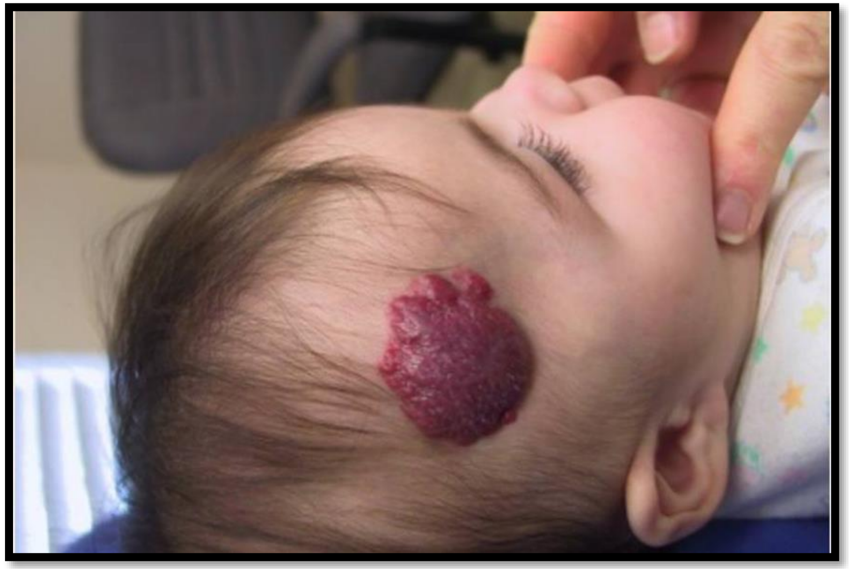
- Atheromas
- Often undergo calcification
- Rupture, ulceration, or erosion of the intimal surface of atheromatous plaques
- Thrombosis
- Hemorrhage into a plaque.
- Atheroembolism.
- Aneurysm formation.

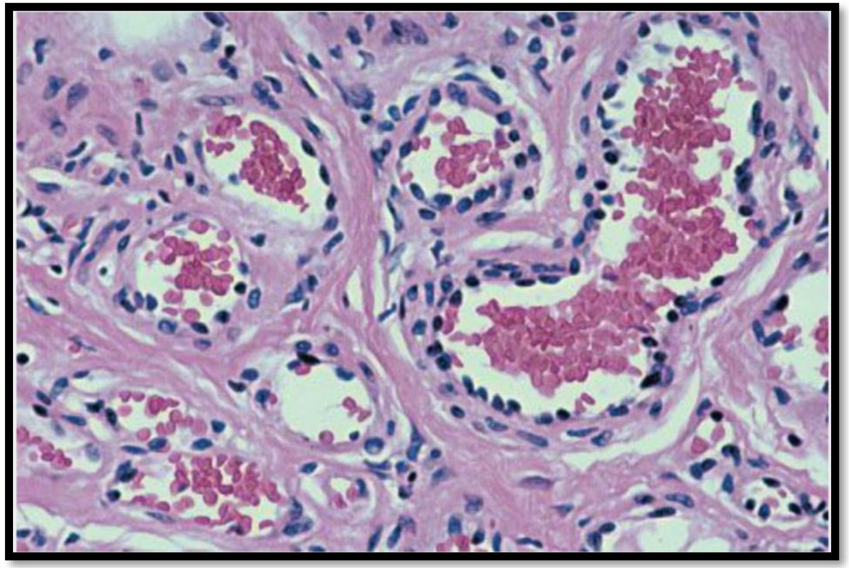


Q\ Describe this picture and give the diagnosis?

Hemangioma (strawberry hemangioma/ strawberry nevus or capillary hemangioma)

- **Grossly** bright red to blue and vary from a few millimeters to several centimeters in diameter; hemangiomas can be level with the surface of the skin or slightly elevated, and have an intact overlying epithelium .
- **Histologically**, unencapsulated aggregates of closely packed, thin-walled capillaries, usually blood-filled and lined by flattened endothelium; vessels are separated by scant connective tissue stroma . The lumens may be partially or completely thrombosed and organized. Vessel rupture accounts for hemosiderin pigment in these lesions as well as focal scarring



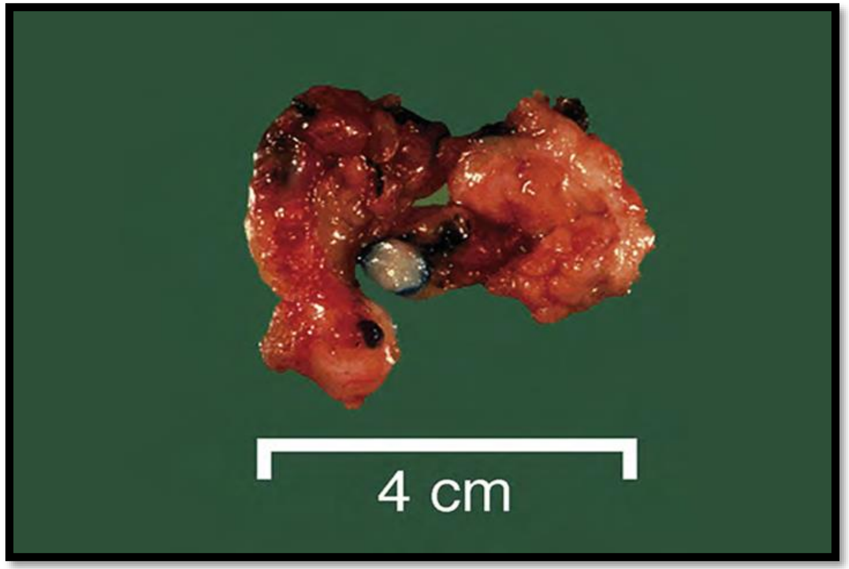


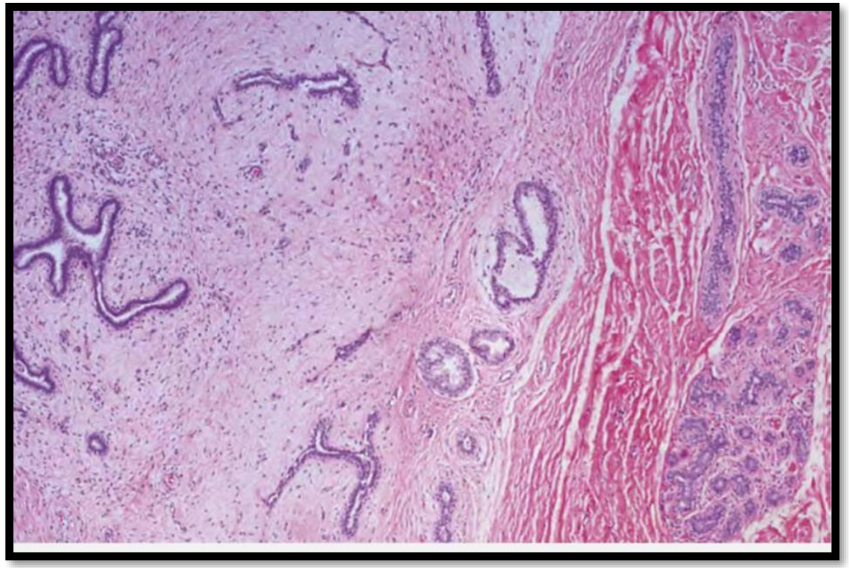
Q\ Describe this picture and give the diagnosis?

- **Grossly** A cut section shows a uniform tan-white color, punctuated by softer yellow-pink specks representing the glandular areas.

- **Microscopic** Compared with normal breast at the right, this solid mass is composed of a proliferating fibroblastic stroma containing elongated compressed ducts lined by benign-appearing cuboidal epithelium.

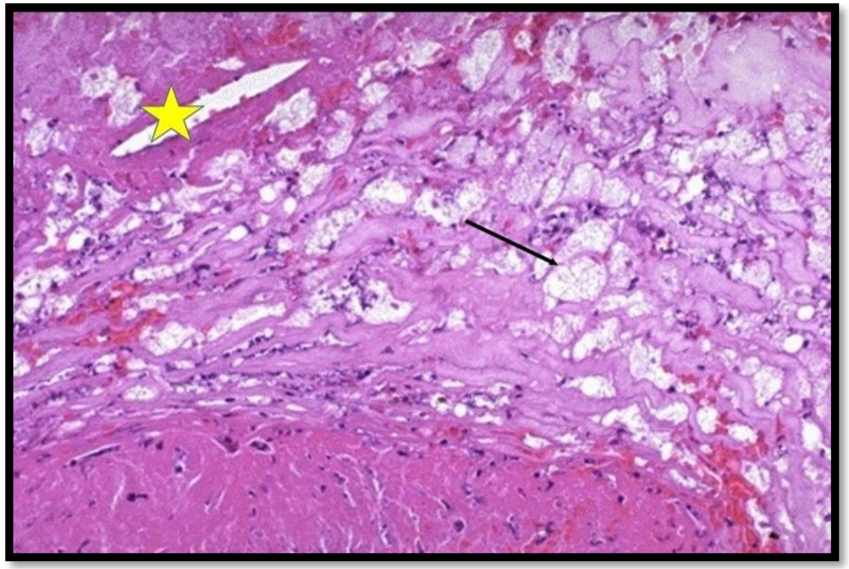
- **Fibroadenoma (the most common benign neoplasm of the female breast)**





Q\ Describe this picture and give the diagnosis?

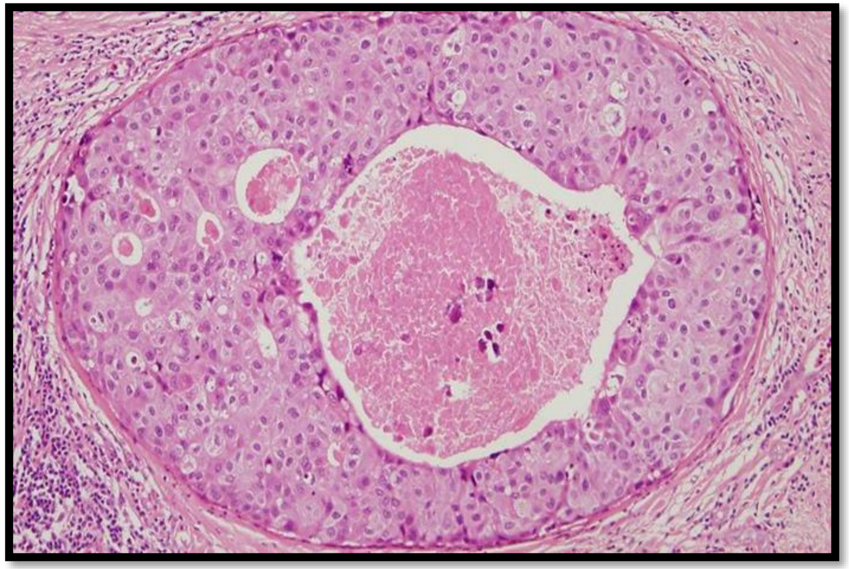
- Numerous foam cells, arrow, and an occasional cholesterol cleft (Star)
- A few dark blue inflammatory cells (lymphocytes) are scattered within the atheroma.
- **Atheromatous Plaque**

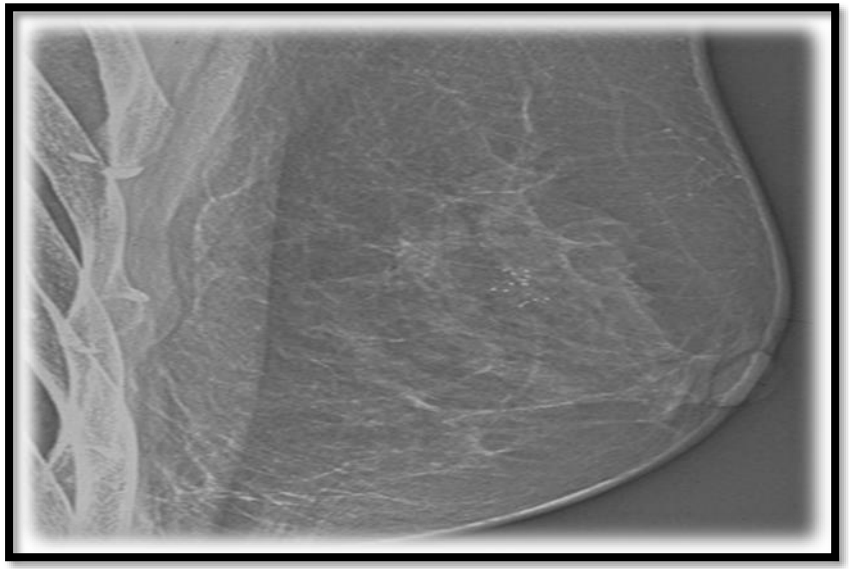


Q\ Describe this picture and give the diagnosis?

- Solid sheets of pleomorphic cells with high grade pleomorphic nuclei and area of central necrosis.
- The necrotic cell membrane commonly calcify and detected on mamograghy as a calcification
- Periductal fibrosis & chronic inflammation.

- **Comedo carcinoma**



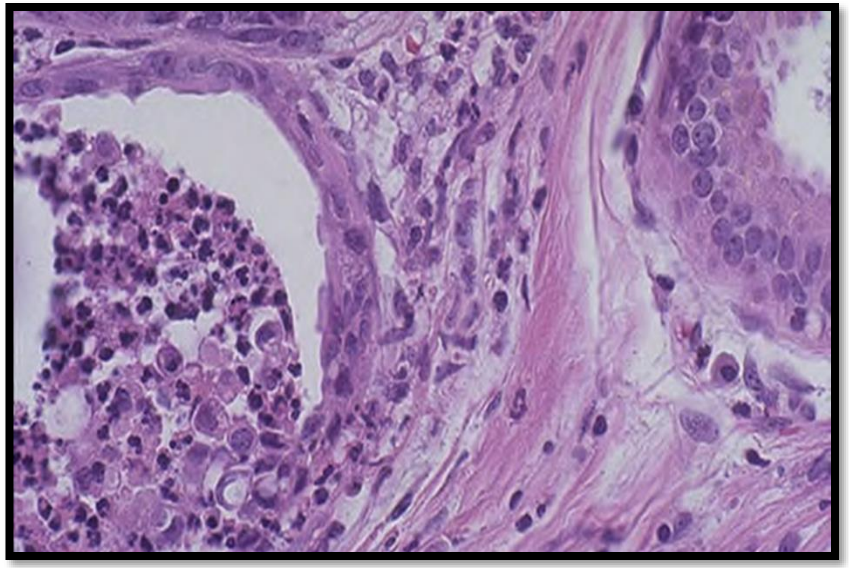


Q\ Describe this picture and give the diagnosis?

Microscopically,

- The duct or lobule is filled with inflammatory cells , mostly, neutrophils.

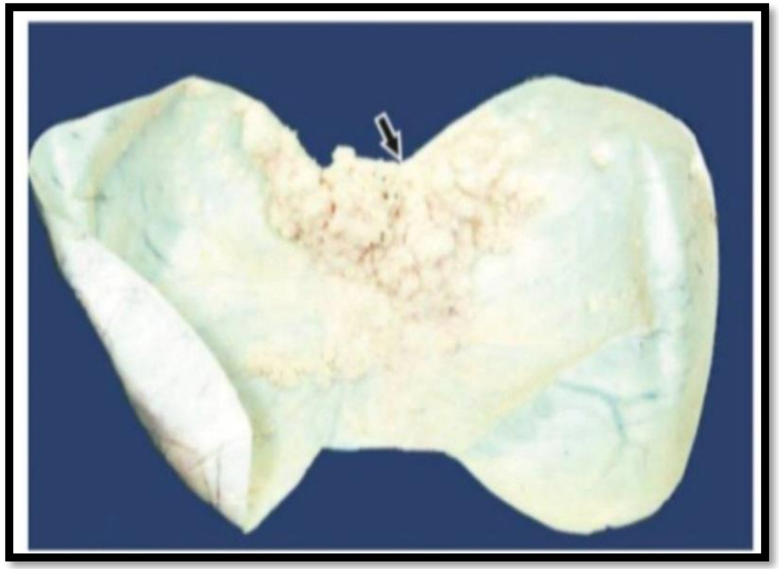
- **Acute mastitis**

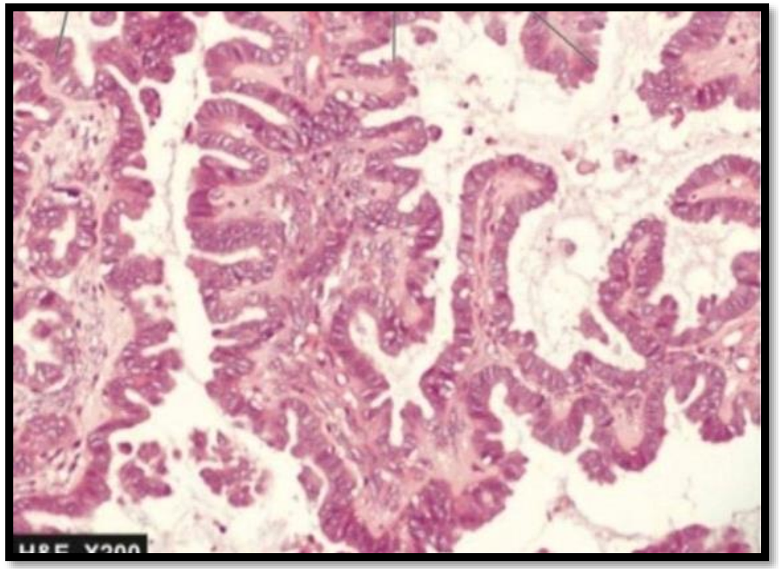


Q\ Describe this picture and give the diagnosis?

- Cut surface shows a large unilocular cyst containing numerous papillary structure projection into it (arrow)

- **Papillary serous cystadenoma of ovary**

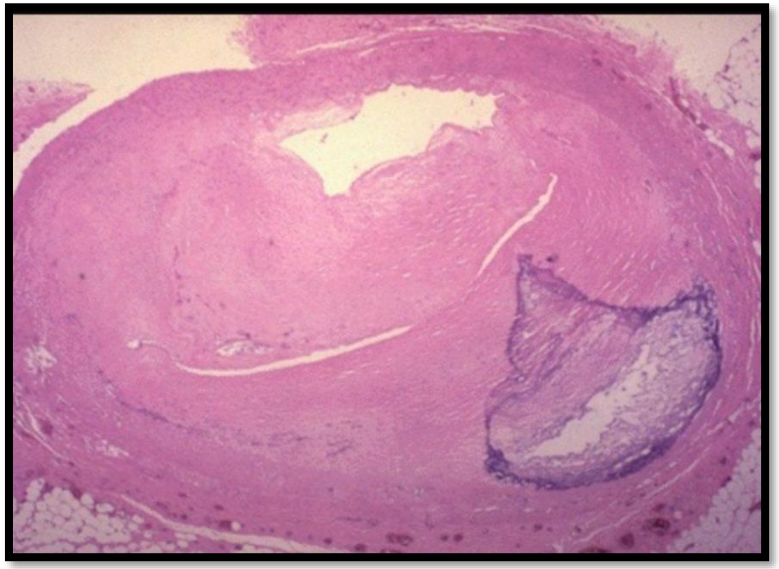




Q\ Describe this picture and give the diagnosis?

- It is "complex" in that there is a large area of calcification on the lower right, which appears bluish on this H&E stain. Complex atheroma have calcification, thrombosis, or hemorrhage. Such calcification would make coronary angioplasty difficult.

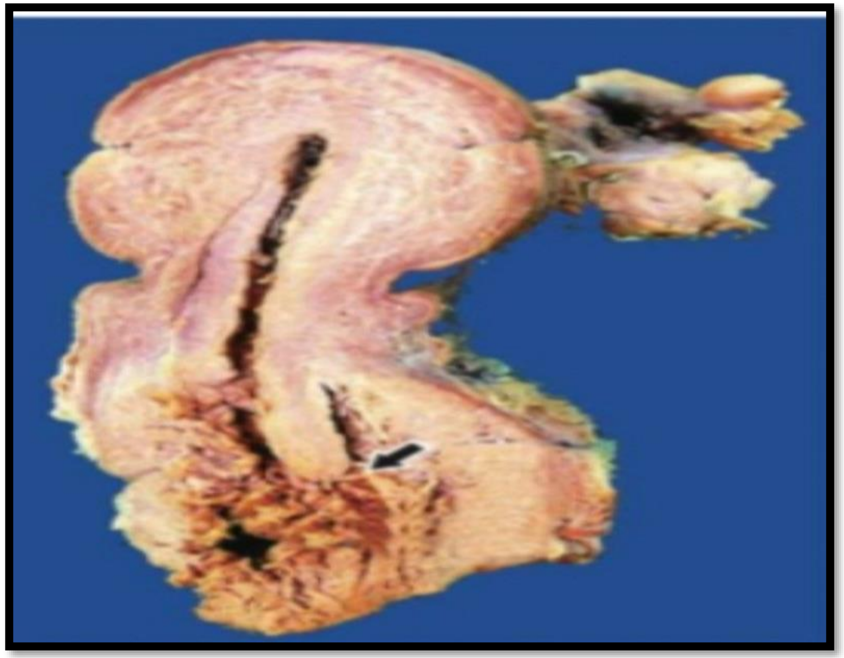
- **Coronary Artery, with Calcific Atherosclerosis**



Q\ Describe this picture and give the diagnosis?

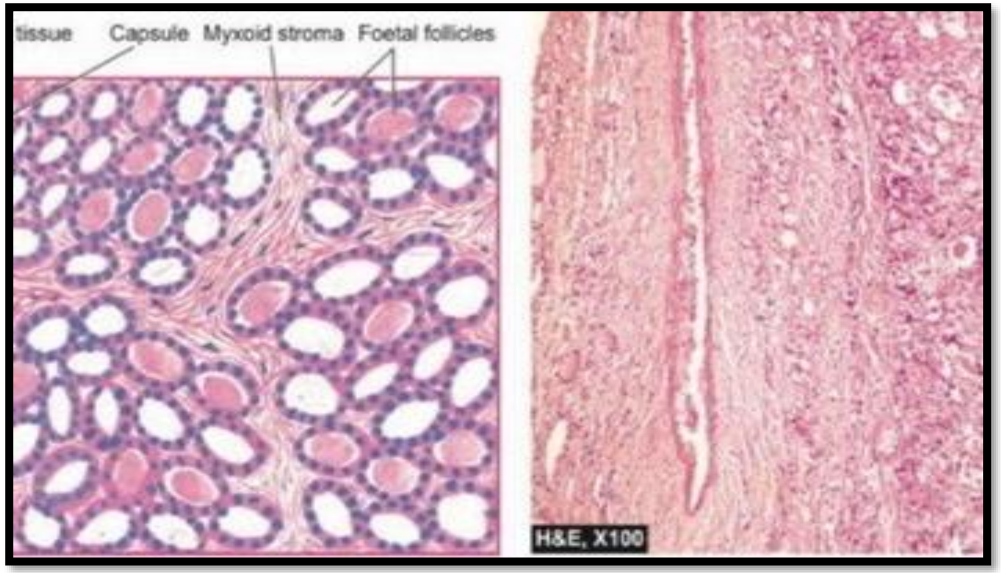
- Cut surface shows normal uterine cavity while the cervix is replaced by irregular grey white growth (arrow) extending into cervical canal as well as distally into attached vaginal cuff

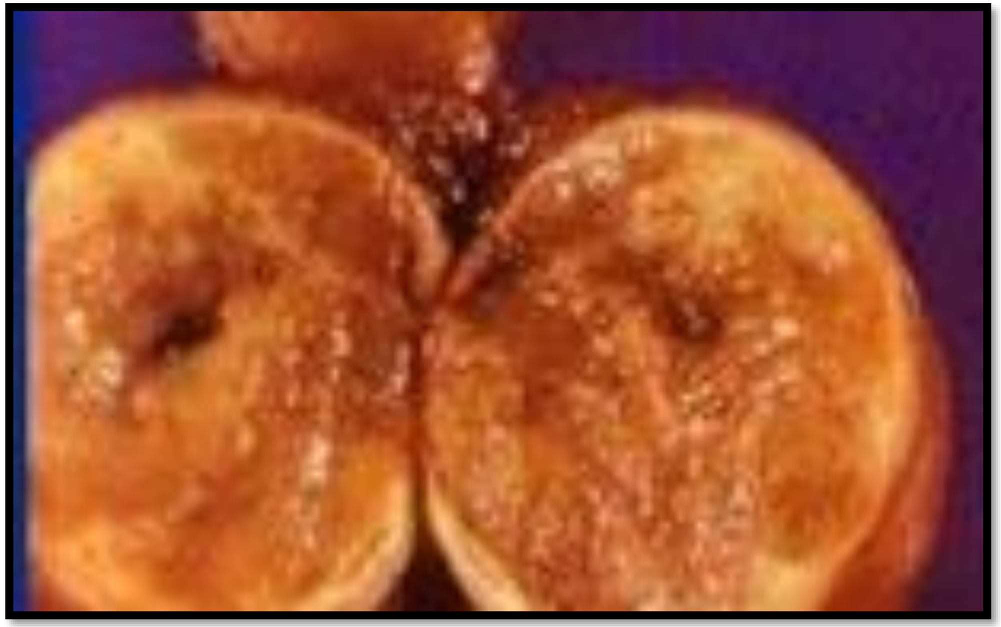
- **Invasive carcinoma of the cervix**



Follicular Adenoma

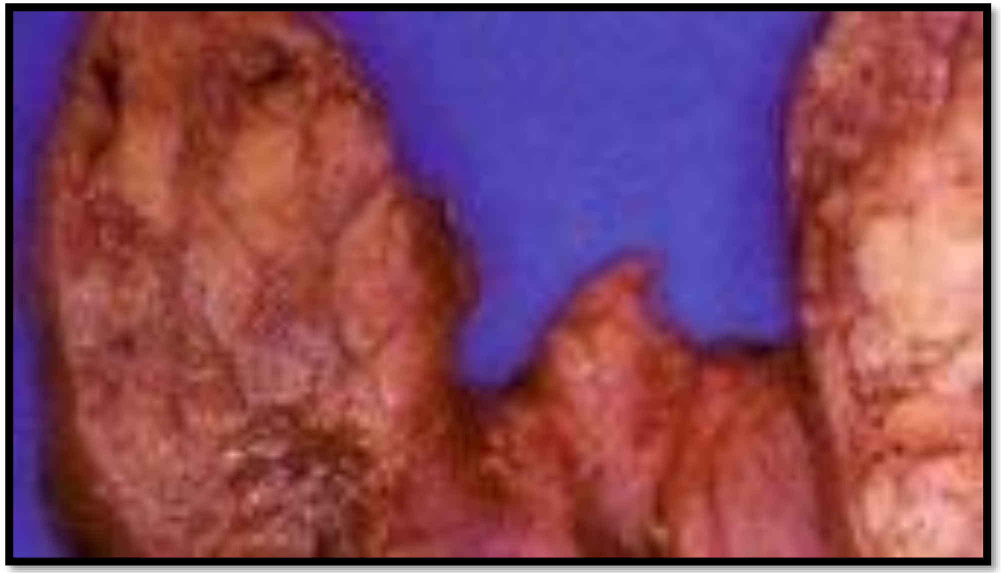
- Solitary, Variably sized, encapsulated, well-circumscribed with homogenous gray-white to red-brown cut-surface
- +/- degenerative changes
- Follicular adenoma, foetal (microfollicular) type. The tumour is well-encapsulated with compression of surrounding thyroid
- parenchyma. The tumour consists of small follicles lined by cuboidal epithelium and contain little or no colloid and separated by abundant loose stroma.

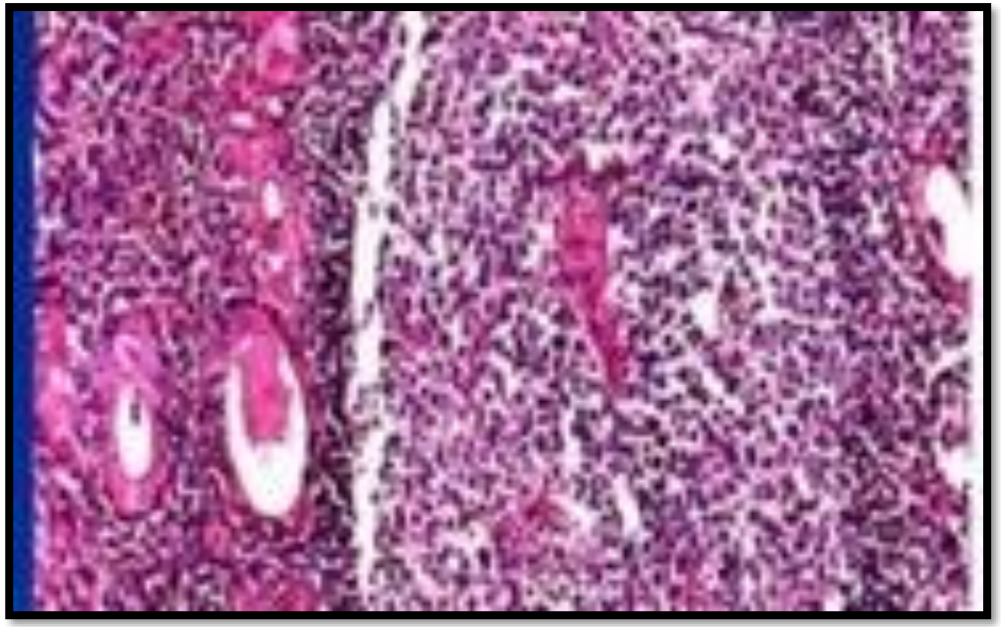




Hashimoto Thyroiditis

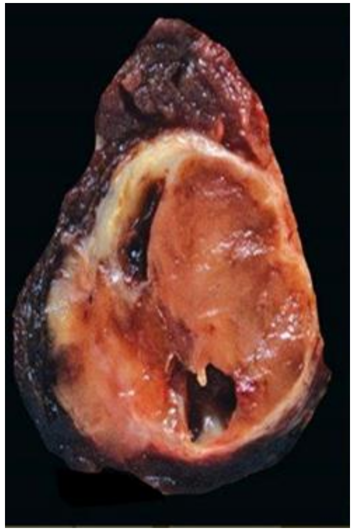
- Diffuse enlargement
- Firm or rubbery
- Pale, yellow-tan, firm & somewhat nodular cut surface
- Massive lymphoplasmcytic infiltration with lymphoid follicles formation
- Destruction of thyroid follicles
- Remaining follicles are small and many are lined by Hurthle cells
- Increased interstitial connective tissue

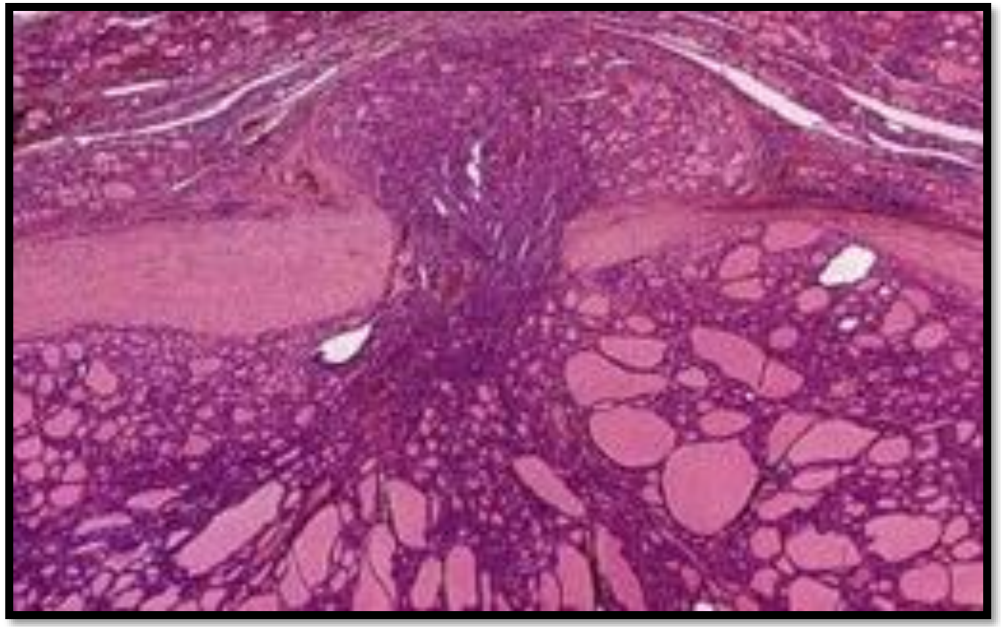




Follicular Carcinoma

- Either solitary circumscribed adenoma or irregular thyroid enlargement
- Cut section shows grey white mass with areas of necrosis, hemorrhage and cyst formation
- Solitary round or oval nodule
- Thick capsule
- Composed of follicles Capsular invasion or vascular invasion within our outside capsular wall



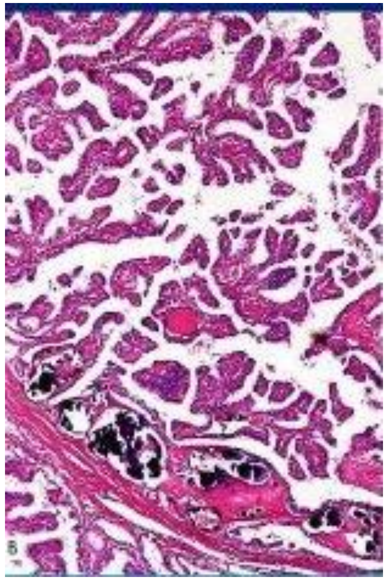


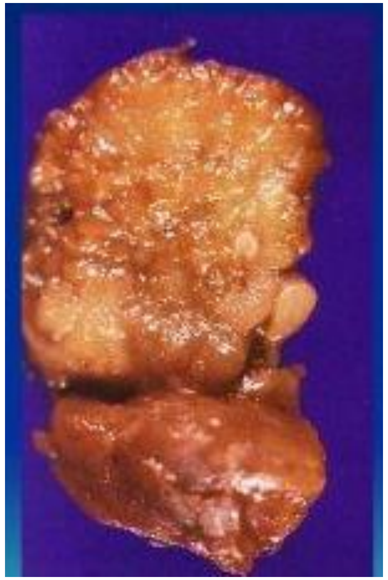
Papillary Carcinoma

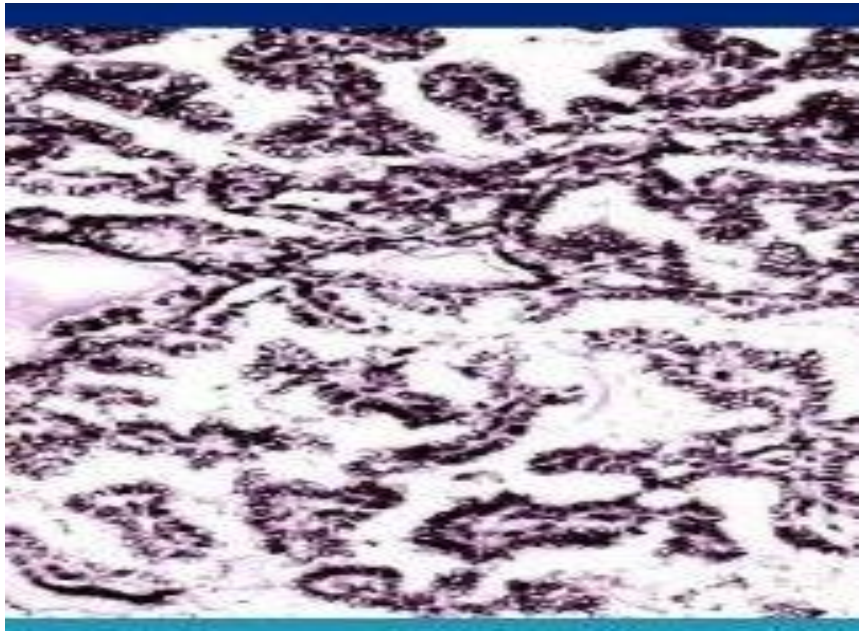
- Variable size (microscopic to several cm)
- Solid or cystic
- Infiltrative or encapsulated
- Solitary or multicentric (20%)
- Papillae or follicles
- Psammoma bodies

NUCLEAR FEATURES

- Optically clear
- (ground glass, Orphan Annie) nuclei
- Nuclear pseudoinclusions or nuclear grooves

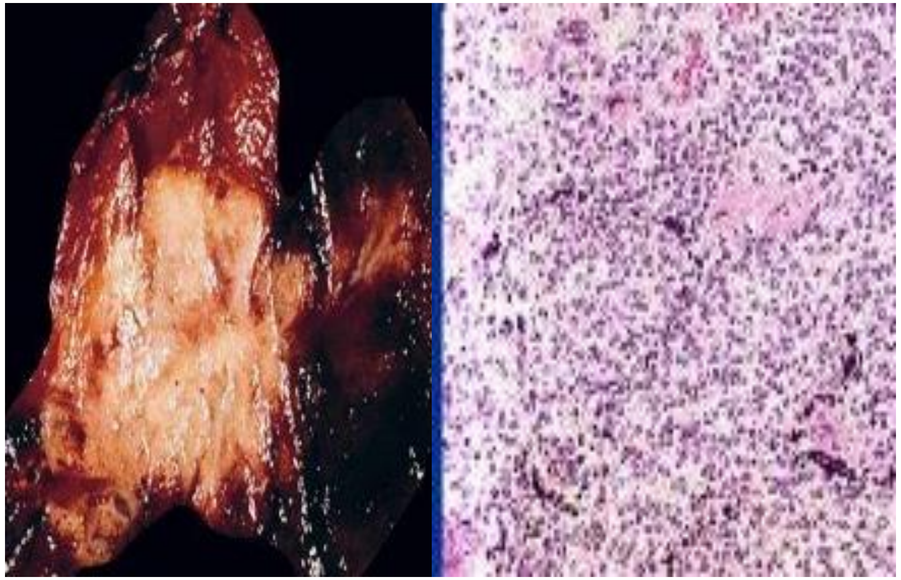


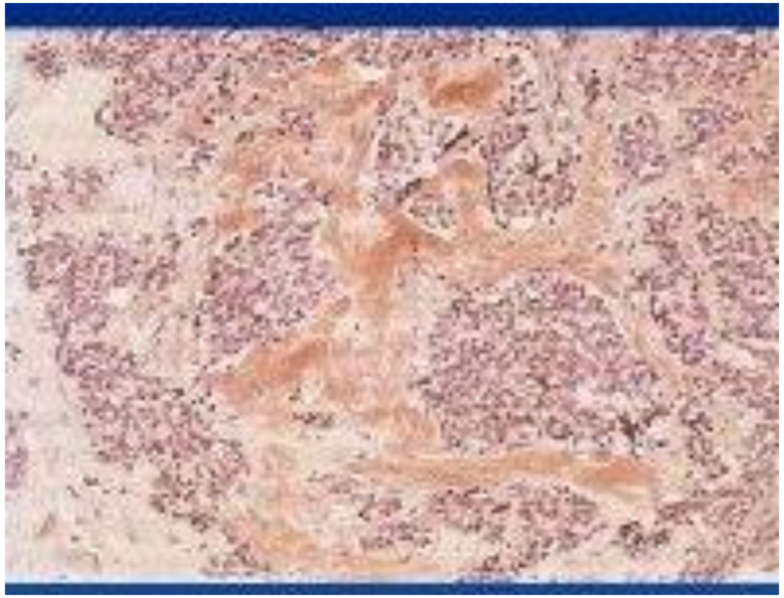




Medullary Thyroid Carcinoma (MTC)

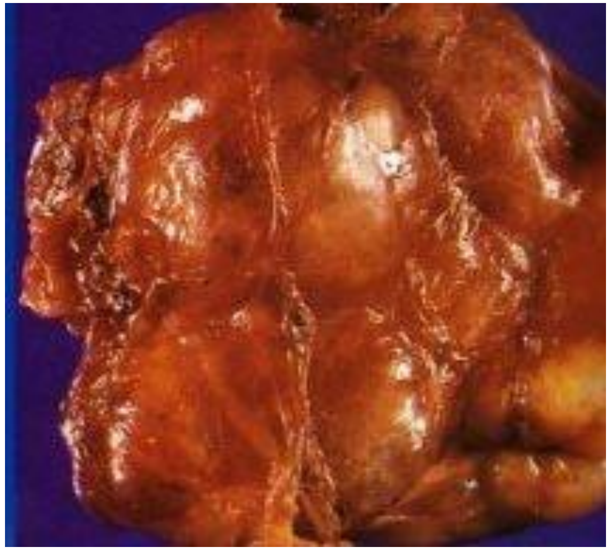
- Unilateral solitary or bilateral and multicentric involvement
- Cut section shows well defined firm, grey white to yellow brown mass with areas of necrosis and hemorrhage
- Histology same for sporadic & familial
- Solid, lobular or insular growth patterns
- Tumour cells round, polygonal or spindle-shaped
- Amyloid deposits in many cases
- Amyloid deposits stain orange-red with Congo Red stain

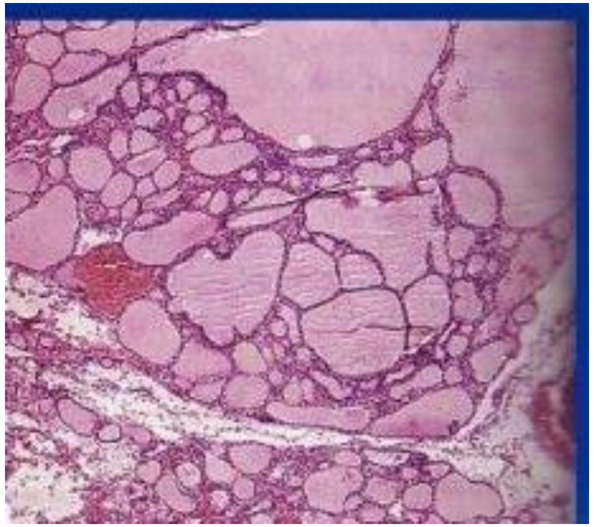




Multinodular Goiter

- Asymmetric enlargemen
- Multinodular
- Haemorrhage
- Calcification
- Fibrosis
- Cystic degeneration
- Numerous follicles varying in size
- Recent haemorrhage
- Haemosiderin
- Calcification
- Cystic degeneration
- +/- dominant nodule





Note

Normal red blood cell → biconcave disc

Iron deficiency anemia → female predominance due to MC and in pregnant increase demand

Megaloblastic anemia → due to

  - Vitamin B12 deficiency due to GIT disease
  - Folic acid deficiency due to increase demand such in pregnancy so the baby(Neural tube defects) and mother (megaloblastic)

Sickle cell anemia

  - RBC destruction at valves or spleen
  - Sickle shape cell

Spherocytosis round shape RBC

Leukemia

- AML → middle age → WBC count. → 100,000
- ALL → pediatric → WBC count. → 100,000
- CML → elderly → WBC count. → >100,000
- CLL → elderly → WBC count. → <100,000

Note

AML
Multiple lobulated nuclei
Vacuolated cytoplasm
Positive for peroxidase test

ALL
One nucleus
Clear cytoplasm
Negative for peroxidase test

Both CML and CLL are more mature than AML & ALL

CML
Enlarged spleen → marked
Slightly enlarged lymph node

CLL
Slightly enlarged spleen
Marked enlarged lymph node
Ghost cell due to rapid and abnormal proliferation